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The Architectural Association Day Classes Scheme.

THE scheme for day classes in architecture which has been drawn up by a committee of the Architectural Association, and which was formally accepted at a special meeting of the Association, reported on another page of this issue, is a very important move in architectural education in this country, and one which may have far-reaching effects.

In its efforts to improve the opportunities of education for architectural students the Association has been for many years going on to wider and wider schemes. Its evening classes were in themselves an elaborate institution, which has been a great success in a qualitative if not in a quantitative sense; the numbers attending have not we believe been so large as might have been hoped, but probably all the members of the Association who have joined these classes will testify that they have received great benefit from them; and the question may now be asked, are these evening classes, some of which necessarily treat the same subjects which must be prominent in the work of the day classes, likely to be continued concurrently with the day classes? or will they suffer by the institution of the day classes?

The two sets of classes do not, it must be pointed out, stand on exactly the same footing in regard to architectural education. The evening classes may be considered as being supplementary to the apprenticeship system; they are to give to pupils articled in architects' offices the opportunity of studying various branches of architectural design and construction in a more systematic way than they could be studied in an office, even under the best intentioned and most conscientious principal. They are classes, therefore, concurrent with pupilage. The day classes, on the other hand, are intended to be classes preparatory to pupilage. The promoters of the scheme, while they do not deny that the knowledge and experience to be acquired by an articled pupil in the routine of office work is indispensable, and such as no other kind of training can supply, take the view (in which we entirely concur) that the student will be much better able to get the best advantage from the routine of actual work in an office if he has previously gone through a systematic study of the elements of architecture, and learned also the use of drawing instruments. He will also in that case be a much more useful person in the office than he could otherwise become till he had been at least two years in it; and the principal or the older assistants, as one speaker pointed out at the meeting, will be saved the interruption to their work from having to show the new-fledged pupil the elementary use of the tools of his trade. There is moreover the great advantage to the student, that before signing articles and committing his parents or guardians to a considerable expense and himself to a career, he will have had the opportunity of discovering whether he likes architectural work and has any ability for it, at no further cost than that of the fees for one or two terms at the Association's day classes. There will be an advantage both to principal and pupil. The general acceptance of the day classes by those who think of becoming architects will entirely modify the terms of pupilage, and the wisest thing for the principal, when asked to take a pupil, will be to say—as one eminent architect states his intention to say in the future—"Let him go through a year's course of the Architectural Association classes first, and then we will see."

It seems to us that such an institution, so obviously supplying a need in our system (or should we say no-system?) of architectural education, cannot fail to be a success; indeed, we should expect that there would almost be a rush to join these classes—to which, however, it must be remembered, a student is not to be eligible without some form of written recommendation. The question is, whether it would be necessary or desirable to carry on the evening classes concurrently with the day classes; whether this would not involve a waste of effort. There is no question that there will never be such good work done at an evening class as at a day class. An evening class in its nature is a supplement to the ordinary day's work, and is entered upon after the mind has been to some extent drawn upon and fatigued by the work of the day. And Mr. Slater, speaking at the meeting already referred to, remarked that there was much less inclination to evening work now than twenty years ago; that the tendency was to spend more time in recreation and on subjects alien to one's professional study. That is the case, and to some extent it indicates a decline in energy, an inclination to take life more easily, which we fear is rather on the increase. But so far as this dislike to evening work means an increased attention to health and to the relaxation which is essential to health, it is an improvement. The greatest professional acquirements attained by unintermittent study will be of little value to a man, if he has not the health to exercise them to the best advantage, or to enable him to enjoy his life, and therefore it is possible that a disinclination to evening studies, if it exists, is not altogether unwise; at all events, they should not be incessant, and these considerations point to the probability that the Architectural Association day classes, if (as we fully expect) they become an established success, will at all events modify the scheme of the evening classes. The best conclusion would probably be this—that the day classes should be regarded as concerned only with those things which directly bear upon architectural design and architectural practice, and which a student intending to put himself into harness in an architect's office, must or ought to know; and that the evening classes should be kept up for the study of those branches of work connected with architecture, but not so entirely indispensable, which a man may desire to study to increase the range of his proficiency. Under this head might come, for instance,

such subjects as hygiene, land surveying, water-colour, colour design, modelling, &c.; subjects which are already carried on in the evening classes, and to which more time might then be given. In addition to this there may be the opportunity for setting up a life class for figure-drawing among the evening classes, which would be a most valuable addition to the scheme of instruction. Such subjects as elementary construction and physics, the history of architecture, elementary design, &c., would be better delivered over entirely to the day classes. Otherwise it is likely there will be a waste of effort.

And what are to be the subjects taught in these preliminary day classes, which are to be preparatory to the office engagement of the student? They are given in the report of the Association meeting in another column, and we turned to them with some interest, to see what was considered to be the true line of study in preparation for entry into an architectural office. No attempt has been made to shadow forth, in the curriculum, any new or out-of-the-way theory of architecture; and this is right. Whether or not we think that some of the ordinarily accepted routine as to architectural studies needs revising, it is clear that the attempt to institute a new series of classes for architectural study is no occasion for any such reform; it would be very hazardous; one must be content to furnish students with that programme of instruction which is, for the present, matter of common consent and agreement. "The use of instruments and scales" comes properly as the first item in the programme, and its prominence seems almost like an intentional protest against the views of those who assert that drawing has nothing to do with architecture. In a sense, no doubt, it is true that architecture is not drawing; but drawing is a necessary means towards properly planning and constructing a modern building; and the fact is that many persons have got into the habit, in England, of making architectural drawings much less precise and careful than they ought to be, for the proper carrying out of a complicated modern structure. The drawing instruments are the tools with which the modern architect has got to work; let the student begin by learning how to use them, and let him not despise them. Architectural and engineering drawing instruments are beautiful implements in themselves, and a man who uses them clumsily will be likely to be clumsy in more serious matters also. "Freehand drawing" naturally follows, and we presume that will be taught on the strictest and severest lines, to develop the capacity of drawing difficult and delicate curves with ease and precision. "The O of Giotto" is a lesson in art training as significant now as it ever was. Then follows "The Five Orders of Classic Architecture." We can fancy some critics raising their eyebrows at that, and asking, "Are we never going to get rid of the Orders?" We do not say that is not a question to be asked; but we have to recognise the fact that we have not got rid of them yet; and though the architects of the immediate future may be disposed to treat them with a great deal more freedom than was the case in the past, in order to treat them with freedom it is essential to have an accurate knowledge of them as a basis to start from. It must not be forgotten, besides, that the study of the Orders in their original scholastic precision of detail is one of the most valuable means of training the eye in the perception of scale and proportion. All things considered, we do not see how the Orders can be omitted for the present from any scheme of architectural education.

"The elements of the various styles of architecture" is a somewhat vaguely expressed item in the programme. One is tempted to ask—Which styles? and what are we to understand by their "elements?" There are various quite recognisable styles of architecture which are nevertheless not worth inserting in an elementary educational curriculum. "The principles of mechanics" and "elementary construction" are of course all right; nor have we any objection to make to the courses of lectures on architectural history. The sooner architectural students get a general knowledge of the history of their art, the better will they be able to understand and to place, as one may say, the details which they learn to draw, and which are all inevitably dependent on something that has gone before. We observe, however, that nothing is said, in either the first or second year's course, about either drainage or ventilation. Much there is in regard to these subjects which can only be learned by actual experience with buildings; but surely elementary knowledge in regard to them should form part of a preparatory training.

Mr. Stratton's criticism, that perspective should have been put in the first year's course, is also not without point. During the vacation of three months students would probably employ themselves partly in sketching; and no sketching can be carried on in any satisfactory manner without a knowledge of the general principle of perspective representation. Without that, a sketcher does not really appreciate the meaning of the forms he sees, nor their relation to the lines which he can put upon paper to represent them. Such refinements as scientific sciography, as well as the more complicated problems of perspective, are properly relegated to the second year's course; but the main principle of perspective should be part of the first year's course, though it should not be surrounded with the mysteries of complicated diagrams which are calculated to frighten students away from it as too difficult a subject. The main principle of perspective is really an exceedingly simple thing, often made quite unnecessarily puzzling by teachers and instruction books, which bewilder the student with a number of detailed problems instead of confining his attention to the principle, which is the same in all cases, and can be illustrated as well in a simple as in a complicated diagram.

The really important difficulty for the Architectural Association lies in the question of adequate premises for carrying on a scheme which in fact is a very ambitious one. They have gone on the principle that it is best to start at once with the opportunities at hand, instead of waiting for new premises; the promoters of the scheme point out that the premises are there all day, in their hands and rented, but little used; and that they thus have the economic advantage of having rooms ready for their use to start with, without entering at once on any fresh expenditure. This is true, but on the other hand those most favourably disposed to the scheme cannot but see that, if it is to be a success on any such scale as to make it worth carrying on, the present premises must be regarded as quite inadequate, not only in regard to space but in regard to dignity of position and entrance, for an institution which is professing to provide a preparatory school for entrance to a great profession. It appears to be hoped that the school itself will materially assist in furnishing funds for the erection of new premises. We fear it will be a good while before it realises funds on a sufficiently large scale to afford any very substantial assistance towards an adequate building; and as far as we can gather them, it seems to us that the views of the promoters in regard to the necessary extent and cost of any building which would be at all worth erecting, or at all worthy of the importance of the object, are very much too limited. We should suggest that the true course would be, not to wait till the funds accruing from the working of the school, together with the promises of subscriptions here and there, had amounted to a fund adequate for the purpose—which would probably mean waiting an indefinite time, but to borrow capital for the erection of an adequate building at once, and repay it out of the working of the school. It is quite certain that such a school of architectural training cannot have the necessary dignity of *entourage*, cannot be regarded as adequately or suitably housed, in the present premises of the Architectural Association.

THE ÆSTHETIC TREATMENT OF BRIDGES.

THE announcement of a paper to be read at the Institution of Civil Engineers on "The Æsthetic Treatment of Bridge Structures" was certainly something new—we doubt if such a paper has been read to that assembly before; and it was not less surprising to find that it was to be read by an engineer. Having gone through Mr. Husband's paper carefully, along with the diagrams attached to it, we can only congratulate him heartily on an essay which is throughout admirably reasoned, and in which, as far as the general opinions expressed are concerned, there is hardly anything said with which architects for the most part will not fully concur. Some of the types of bridges illustrated which are selected for commendation may not appear to us to be very beautiful; in these matters reasoning is one thing, graphic illustration is another; and it is possible to have a structure which illustrates the soundest principles without being in itself beautiful. But in his statement as to the objects which should be kept in view, as far as appearances are concerned, in the designing of large bridges, Mr. Husband shows a degree of perception which is certainly not often found among engineers; and though the engineering profession in general refuse to listen to the opinions of architects on the subject of design, or to attach any weight to them, it is to be hoped that they will listen when they have words of wisdom addressed to them by an Associate member of their own representative body.

We give on another page a *résumé* of the paper as furnished by the Institution, but

having read the paper in full, we may here remark on one or two of the points in it which seem worth special attention.

The author divides his subject into three heads—masonry bridges, iron bridges, and those in which masonry and iron are used in combination. In regard to the purely masonry bridge, he points out that the use of a moulded architrave on a large span bridge has the effect of reducing scale by using a kind of detail habitually associated with arches of a smaller scale, and that the megalithic character of a bridge is better asserted by depending simply on the arrangement of the voussoirs and spandrel masonry. In like manner, the employment of the niche as a means of doing something with the face of a pier, even where no sculpture is intended and where the niche is far too large in scale for any but colossal sculpture, is in reality a false employment of an architectural feature proper to a different scale and to a different class of structure. The treatment of the spandrels in moulded panels, as in the Grosvenor bridge at Chester, we quite agree with him in repudiating; it is treating a monumental structure like a piece of furniture. In regard to the design of the piers of a bridge Mr. Husband has a passage on the frequent use of columnar forms as ornaments in this portion of the structure which is so well put that it is worth while to quote it *verbatim*:—

"A few words may here be said regarding the use of classical pillars or pediments on this portion of the structure. The pillar is essentially a weight-bearing member, and in order to show to the best advantage, this feature should be given due emphasis. Its employment, generally as a fairly massively proportioned member, for the superstructure upon the cut-water of a bridge is seldom successful, since at the most its supporting function is limited to merely carrying the weight of a short entablature surmounted by the parapet. Added to this the use of the pillar in classical architecture is so generally associated with repetition—pillars being usually grouped to form colonnades in which four is the minimum number employed—that the sight of a pair of columns or a single detached pillar upon the face of a pier gives rise to a suggestion of strangeness and isolation. For these reasons London Bridge may perhaps be regarded as of higher æsthetic value than Waterloo Bridge. Were it advisable to employ a columnar design for the cut-water itself, the result would be much more satisfactory, since the pillars might then be suitably grouped and have superimposed upon them a considerable mass of masonry, thus calling into play the significance of their essential function. In the same way the pediment being so intimately associated with temple architecture, its adoption is often a greater solecism than that of the pillar."

On one point in reference to masonry bridges, however, we must differ from him, viz.: in his approval of the common system of building a cut-water on the downstream side of a pier as well as on the upstream side. He defends this on the ground of symmetry; we consider it is giving up one means of imparting character to a bridge, by letting the general form of the pier be frankly influenced by actual circumstances—by the run of the water in which it is built. It is absurd to build a pier as if the water ran both ways, when we know that it can under no circumstances do so except in a tidal estuary.

Bridges entirely of iron, or rather steel, include, as the author observes, all the very largest span bridges, many of which are on such a scale that anything like the application of ornamental treatment becomes economically impossible.

"In these structures not only would the addition of ornament be false in principle, as being foreign to the purposes of design, but its systematic application could only be indulged in at the expense of a great increase in weight with a corresponding sacrifice of economy. From these considerations it is plain that the standard of æsthetic criticism to be adopted depends, firstly, upon the most perfect economic application of material, and secondly, in cases where distinctly optional design is possible, upon the adoption of the most pleasing outline consistent with economy. It has repeatedly been urged that these erections as a class are amongst the least æsthetic ever designed by man. That this scathing judgment may be true of a few isolated examples in which the essential principles of æsthetic construction have, apparently through sheer ignorance, been totally neglected, is not denied; but such a sweeping statement can only be the result of an appeal to standards as false as the verdict is unfair."

In the case of structures like cantilever and suspension bridges, where the working parts of the structure are frankly and nakedly shown, the structure itself is sufficient to give interest to the eye, and is its own best apology. There are some very good remarks on cantilever bridges, and especially on the falsity of the attempts which have been made in one or two instances to disguise the break between the cantilever and the horizontal span by giving a curve to the upper members of the cantilevers and continuing this curve through the upper member of the horizontal span; thus falsifying the structure, destroying its character, and sacrificing economy of material. In regard to suspension bridges, the author mentions, but with no expression of opinion, the method of stiffening the chain adopted in the shore spans of the Tower Bridge (he does not quote this example), by forming them in the shape of fish-bellied hanging girders. We regard this method as very ugly, losing all the natural beauty of the catenary curve; and the stiffening of the roadway can be just as well or better effected by a suspended horizontal stiffening girder. In regard to the piers of metal structures Mr. Husband speaks so well and forcibly that we are again tempted to quote his own words:—

"Although this section of the paper treats of structures built entirely of metal, yet it may be remarked that the kind of pier adopted for a suspension bridge is a matter of primary influence as regards æsthetic appearance, and those examples which are supported by masonry piers are, in general, far superior to those carried on piers of iron or steel. Considering those cases in which metal piers have been employed, their adoption cannot be said to have achieved any decided success. In many examples the design consists of an iron or steel tower, presenting some resemblance to a masonry structure. This is undoubtedly one of the most fatal errors into which the designer can fall. Attempts to repeat, in a plated and riveted structure, the outward form of a masonry arch, as is the case with the piers of the Tay Bridge, or to copy in iron that which in stone is eminently suitable for the propylon of an Egyptian temple, as has been done in more than one notable instance for the towers of suspension bridges, can only result in dire failure. It is possible, whilst viewing such structures from a considerable distance, to coerce the mind into a belief that they are actually of stone, as their form would suggest; but closer acquaintance robs them of all semblance of propriety. It is much preferable in lofty piers of iron or steel to adhere to some suitably-braced design removed as far as possible from the suggestion of a masonry prototype."

We can only hope that engineers who listened to these words will profit by them

In speaking of the class of bridges which combine steel with masonry, Mr. Husband is, we think, a little under a misapprehension in regard to the Alexandre III. Bridge, of which he speaks with much admiration, but observes that the masonry pedestals at its approaches are a little too high for so flat an arch, and "are situated too far in the rear of the visible recipients of the thrust; their position, in fact, scarely renders them liable to criticism as a legitimate part of the structure." They are not meant to be regarded as a part of the structure. It must be remembered that the Alexandre III. Bridge is essentially a kind of festal or triumphal bridge, and the flanking piers with their sculpture are put there simply for glory, not for any suggestion of use; they were to give a pompous appearance to the entry of the bridge, and are no more utilitarian features than is a triumphal arch. The Alexandre III. Bridge might really have been more properly classed as one of the metal structures; it is true that it has masonry counterforts on the banks, but so has the Forth Bridge—not exactly counterforts, for that is not their function, but anchoring blocks, besides a granite approach bridge.

In connexion with the whole subject, however, we may point out that the best reasoning on the subject of the æsthetics of engineering design will be to very little purpose unless engineers will make up their minds to make it part of their education to study the design and the meaning of architectural and decorative detail, so as to train the eye to appreciate the distinction between good and bad detail, and to understand the real meaning of architectural forms and thereby at least avoid their misapplication in such a way as to be unmeaning and absurd. Reasoning alone on such questions will not suffice; they are matters of perception, which is not to be developed without a special training to that end.

NOTES.

The Housing Question Again.

THE discussion in the House of Lords last week on the Housing Question was singularly disappointing. There was a hope that Lord Salisbury would enunciate some kind of policy on the subject, but he left things exactly where they were. The result of the discussion is to magnify at once the demands and the difficulties of the question. If the Prime Minister can only point out difficulties, what chance is there of any scheme being carried out? That the subject is one most troublesome to deal with cannot be questioned, and it is doubtful if any number of Acts of Parliament will do more than modify the difficulties of the problem. The unfortunate part of the matter at the present time is that Ministers and Members tell us that no subject so immediately demands attention, thereby raising public expectation, and then when the question is brought forward in Parliament no remedy is suggested. As we have said over and over again, the subject is so complex, so variable, and so continually growing, that it can never be cleared away, as some sanguine persons would seem to think. But that is no reason why the Cabinet should not either formulate some scheme, or if it has not the will or capacity to do so, then keep silence—admit the difficulty of the problem and the impossibility of solving it

Privileged Communication.

IT is clear from the case of Sadgrove *v.* Hole, decided last week by the Court of Appeal, that if a building owner writes to a builder pointing out errors in an architect's plans or a quantity surveyor's measurements, it is a privileged communication. But it is equally clear that care must be taken as to the manner of communication, and that to send such complaints by a post-card so that all the world may read them may take away the privilege. "He had no doubt," said Lord Justice Collins, "that it was within the right of the defendant to communicate with the builder on the matter in question, and therefore as between the defendant and the builder the occasion was privileged. That privilege covered the libel, unless there was what he might call a superfluous publication to any person other than the builder to whose knowledge the post-card might be brought." In the present case the odd thing was that the plaintiff was a clerk in the architect's employment who was responsible for the quantities. He was not even named on the card, which merely stated that there were great mistakes in the quantities. That being so, the Court held that there was no publication as regarded the plaintiff. That, however, is a point of much less importance than the general proposition laid down as to privilege and as to publication as between the building-owner and the builder. It is a little difficult to see why in the present case the plaintiff went to law at all. However, he has been the means of eliciting from the Court of Appeal a decidedly interesting decision.

Public Confidence in Architects.

IN a general leading article on various legal cases in the *Times* of Monday last, reference is made to a decision of the Court of Appeal to the effect that an architect employed by a building owner and authorised, as usual, by the compact to give final and conclusive certificates, is in the position of an arbitrator and not liable for negligence. Commenting on this, the *Times* observes:—"It speaks volumes for the general confidence in the architects of the country that everybody puts himself at their mercy without practical redress if they are careless as judges or arbitrators in giving their certificates." This kind of recognition of architects is something new for the *Times*. Better late than never.

Insulation on Cables.

MR. O'GORMAN read an abstract of his paper on the insulation of electric lighting cables to the Institution of Electrical Engineers last week. When we consider that of the capital expended on electrical schemes at least half is on the cables, it will be seen that the subject is one of the greatest importance to the industry. Mr. O'Gorman's paper is of somewhat unequal merit; it contains a few brilliant suggestions, some useful tables, some indifferent calculations and formulæ, and a great deal of compiled matter from foreign technical journals. It will probably occupy about one hundred pages of the *Journal*, but could most advantageously have been cut down at least fifty per cent. He quotes almost in its entirety a paper on cables, communicated by Mr. Swinburne to the Engineering Conference two years ago. This paper gives a few empirical calculations and an exceedingly doubtful formula, which Mr. O'Gorman seemed to appreciate highly. The main conclusion to be drawn from the paper is that, with cables for high-pressure alternating currents, attention has to be paid not only to the specific insulation of the insulating material, but also to the dielectric strength and the dielectric capacity. He showed a striking experiment, illustrating how when the electric pressure between two conductors suspended in air was very high, introducing a piece of glass between them increased the "potential gradient" of the air and caused an arc to start between them. He suggested rightly, we think, that the "potential gradient" measures the liability of an insulating material to break down under electric stress, and suggested that the layers of insulating material in concentric cables should be graded so that the disruptive stress might be the same at every point. In the subsequent discussion Mr. Swinburne stated that the insulation of a cable was more a matter for experiment than for calculation. He had found that the paper called "butter-skin," in which butter is wrapped, had a high inductive capacity, and he had used it for making alternating current condensers.

The Church Sanitary Association.

AT the meeting of the Church Sanitary Association last week a resolution was passed in favour of inculcating "the Christian obligation" of pure air and water, abundant light, and wholesome surroundings. We trust that this Association will not be satisfied with good resolutions, but will endeavour to get its members to do practical work in their parishes, and will bring to the country clergy especially the knowledge of the great opportunities which they have of improving the sanitary condition of English villages. A country clergyman knows, as a rule, more of the sanitary condition generally of his district than any other person. He visits the poor and sees the interior of their dwellings. If he will bring to the notice of the Local Authority sanitary defects, he may do an immense amount of good. It may be said that his business is spiritual and not material, but as a ratepayer he has a right to give information to his Local Authority. He can also do much by advice and teaching to induce poor parishioners to attend to the sanitation of their dwellings. This Association could not do better work than circulate among the parish clergy leaflets giving hints upon sanitary subjects.

The Adelphi Theatre, Strand.

A LEASE of the premises having been taken by a limited company, the theatre is now being remodelled and improved from the plans and designs of Messrs. Ernest Runtz & Co. For an extension of the façade, in accordance with the present design of the principal front, the site has been taken of the adjoining house on the west side, No. 412, Strand, and we understand that it is proposed to carry up the new portion by one story in the form of a tower above the existing elevation. The Adelphi Theatre has undergone various structural changes since the building of it was begun in 1802 for John Scott, who, with his daughter, opened it as the Sans Pareil on November 27, 1806. In 1821 Scott sold the theatre to Rodwell and Jones, who renamed it the Adelphi. Having been for some while under the management of Charles Mathews the elder and Yates, the house was modified internally, and a new front, by Samuel Beazley, was erected in 1840. Then the house was rebuilt, in Benjamin Webster's time, after the designs of Thomas Henry Wyatt—a view of the interior will be found in the *Builder* volume for 1858, p. 871—and reopened on December 27, 1858. The present front includes the Adelphi restaurant, which was built about fourteen years ago by the late Mr. Spencer Chadwick; subsequent enlargements, with improvements of the theatre, have been made after Mr. W. Barnard Pinhey's plans and designs. A plan on p. 834 of our volume cited above shows the enlarged site and auditorium for Wyatt's building, with the extension that included nearly all the west side of Bull Inn-court. The old narrow front and entrance in the Strand remained until the restaurant was erected.

Some New Decorative Work.

LAST week we noticed the '1901 Book" of Messrs. Neatby, Evans, & Co., and have since then had an opportunity of seeing their exhibition of furniture and interior decoration. As we expected from the illustrations and general get-up of the catalogue, their work is of the ultra phase of the "Arts and Crafts" movement which is so popular with a certain section of the public. Mr. Neatby and Mr. Evans have both been trained in architects' offices, and we understand that they have been engaged in their present venture for less than a year. For so short a period the exhibition shows a surprising versatility of subjects and materials handled—furniture, metal work, enamels, stained glass, embroidery, wall-papers, &c. Some of these are treated with originality and success, but as a whole the work strikes us as being of too popular a nature. Something more than novelty and pretty colours is needed in furnishing a house. The one is obtrusive on entering a room for the first time, and the other soon becomes wearisome. Occasionally we see modern furniture as good as that of the best periods of English furniture, and it is noticeably free from the self-consciousness that so permeates most modern design. Much of the best furniture of Chippendale, Sheraton, and Hepplewhite is not beautiful, but it satisfies the mind that it is suitable in construction and form for the purpose for which it was intended. We believe, however, that Messrs. Neatby, Evans, & Co. will be successful in their venture; their training as architects is the best guarantee for their enterprise, more especially if some of the restraint in design that is essential in architecture be carried into their new work.

The Goupil Gallery.

THE Spring Exhibition at the Goupil Gallery contains a certain proportion of the kind of landscapes of which we are seldom without examples there—landscapes such as Mr. Muhrman's "The Thames at Gunnersbury," and M. Boudin's "Rue St. Romain, Rouen," and others, which impress one as being painted in mud rather than in colour; but in spite of the rather dingy impression of the whole, there are some fine works in the collection. Perhaps the most interesting is a small and very broadly handled forest landscape by Gainsborough (23), different from any other Gainsborough we have seen; a small landscape in a grand style, and which has some qualities almost reminding one of Diaz. There are two or three small works by Corot,

of which "The Lake" (14), a composition and effect of which there are several repetitions among his works, may be said to be the only one which represents the real and typical Corot. A large work by Troyon, "A Normandy Fair" (45), represents a collection of peasants and cattle on a bare plain with a tremendous rain-cloud over it; the figures and animals are treated with the painter's usual power, but it is a singularly unpicturesque and unattractive specimen of Troyon. Mr. Bertram Priestman's "Sunny Pastures" (3—not *very* "sunny") is a good cattle picture with a quality of style about it. Among others of the more important works M. Weiss's "Midwinter" (57) is a fine though rather gloomy scene; Mr. Mouncey's "Kircudbright Lane" (62) is an example of a very rough style of handling which nevertheless has a powerful effect when considered *en masse*; and Herr Steelink's "Flock on the Dunes" (65), a little picture which owes its inspiration to Mauve, has a true artistic completeness.

The Dutch Gallery.

THE small room at 14, Brook-street, which is called by its owners the Dutch Gallery, is occupied at present by a collection of figure studies in drawing, pastel, and lithograph by Mr. C. H. Shannon. In general these works are not remarkable for beauty, but they show a variety of studies of the figure of considerable originality and power. The pretty features in the collection are the two sets of small circular wood-cuts of figure subjects treated in a decorative manner. They are stated to have been drawn, cut, and hand-printed by the artist, and appear to be printed in two tints; we do not quite understand the process, but the result is a novel and very pleasing effect.

THE ARCHITECTURAL ASSOCIATION DAY CLASSES.

A SPECIAL general meeting of the Architectural Association was held in the Meeting Room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, W., on Friday evening last week, Mr. W. H. Seth-Smith, President, occupying the chair, when a scheme for the establishment of day courses of instruction was submitted for the consideration of members.

Early in the present session a strong Education Committee was appointed to consider and report upon the whole subject. This Committee consisted of Messrs. Cole A. Adams, F. T. Baggallay, R. S. Balfour, G. B. Carvill, Arthur Cates, B. F. Fletcher, H. L. Florence, F. T. W. Goldsmith, H. T. Hare, F. G. F. Hooper, P. J. Marvin, E. W. Mountford, Beresford Pite, W. A. Pite, H. W. Pratt, G. H. Fellowes Prynne, E. Howley Sim, H. D. Searles-Wood, W. Howard Seth-Smith, John Slater, Leonard Stokes, and Aston Webb, A.R.A. After six meetings, their Report was presented. The General Committee of the Association has practically adopted the whole Report with few amendments. The proposals are as follows:—

1. That the studio be opened during the day, and that day classes be established forthwith. The work in these classes and in the studio to be of a preparatory and supplementary nature suitable for those who have entered or are about to enter architects' offices as pupils.

2. That this branch of the work of the Architectural Association be known as the day school, while the present classes be called the evening school.

3. That the first course of studies be arranged to cover one year, but students to be afforded the opportunity of taking a second year in the studio, when they might also attend some of the evening classes.

4. That each year be divided into three terms, namely, autumn, spring, and summer, consisting as nearly as may be of thirteen weeks each.

5. That the work in the studio be supplemented by a certain number of lectures on history and construction, so that the students may better understand their work.

6. That a master of the studio be appointed at a salary to be fixed by the committee, who shall deliver lectures on the "History of Architecture and Elementary Building Construction." The master to nominate an assistant to help him in the studio, such assistant, if approved, to be remunerated as may be deemed expedient by the committee.

7. That the studio be open from 9.30 a.m. to 5 p.m. (1 p.m. on Saturdays), and that the assistant-master be in attendance during these hours. The master himself, however, would attend at stated times to instruct the students and deliver his lectures.

8. That the fee for the full course be 12 gs. per term or 35 gs. per annum, but students taking only the lectures to pay a fee of 2 gs. per term for each course, or 5 gs. per annum. Students wishing to join the day school must submit a letter of recommendation.

9. That after payment of the fees for the first year's course students shall be eligible for election as ordinary members of the Association without paying the usual entrance fee.

10. That students should be encouraged to cultivate a thorough knowledge of the French and German languages (if they have not already acquired same), as these languages are particularly useful for purposes of study and when travelling abroad.

11. That the studio library be augmented as may be found necessary, and be available at all times when the schools are open.

12. That the management of the school be under the direction of the Committee of the Architectural Association, assisted by an advisory board of eminent architects and other gentlemen.

13. That the following subjects be included in the curriculum:—

First Year's Course.

(*a.*) The use of instruments and scales.
(*b.*) Freehand drawing.
(*c.*) The five orders of classic architecture.
(*d.*) The elements of the various styles of architecture.
(*e.*) The principles of mechanics.
(*f.*) Elementary construction.
(*g.*) Sketching and measuring details and portions of existing buildings.
(*h.*) Thirty-six lectures on the history of architecture (illustrated by visits to buildings and museums).
(*i.*) Thirty-six lectures on elementary construction and materials (illustrated by visits to workshops and buildings in progress).

Each student will be expected to take up a course of reading under the direction of the studio master.

Second Year's Course.

(*a.*) Continuation when necessary of the subjects forming the first year's course.
(*b.*) Perspective and sciography.
(*c.*) Descriptive and applied geometry and graphic statics.
(*d.*) Principles of architectural design.

Each student will be expected to take up a course of reading under the direction of the studio master.

N.B.—Students taking a second year in the studio, should attend such lectures or classes, day or evening, as the master may advise.

The master of the studio will direct students as to their vacation studies.

The Chairman in opening the proceedings briefly explained the object of the meeting, and called on Mr. Aston Webb to put the scheme before them.

Mr. Aston Webb said that he looked at the matter from the general standpoint whether or not day schools should be started for the education of architects and the advancement of architecture. We were occasionally told that those buildings of old that we admire so much were erected without architects at all. That might be so, though he supposed if that were so they must, like Topsy, have "growed." Whether there were architects or not there must, at all events, have been some one to look after the buildings that were being erected, and judging from the lists of members of the Architectural Association and other architectural societies, there were likely to be architects for some time to come, and many of them. There were also many yet to join the ranks, and the question to be considered was whether, under the present system, or want of system, a young man entering the profession had sufficient opportunities for properly learning his calling. The two points that seemed naturally to arise were these: Were these day classes required, were they worth starting? If they were, was the Architectural Association the right body to start them? As to whether the classes were required, he would ask what were the present opportunities a young man has in London of learning the profession of architecture. A young man could enter either as articled pupil to an architect, or as a paid assistant in an office where he might pick up what knowledge he could, gradually working himself into a position where he could obtain work for himself. Well, were architects content with that state of things? Was that sufficient? A pupil went into an office and was set to work drawing the Orders and learning the elementary problems of construction, mixing up those pursuits with a certain amount of office work, at first largely consisting of tracing. Now, the idea which occurred to the committee which had gone into this question of day classes, and certainly the idea which presented itself to his mind, was whether drawing of Orders and the acquiring of knowledge of elementary problems of construction—strains and stresses, the weights that various materials could carry, and such general elementary matters—could not be better taught elsewhere than in the office—at all events, for the first year or two of a young man's career. Judging from his own experience both as a pupil and as one who had had pupils, he was inclined to think that the acquisition of such elementary knowledge could best be started under the direction of an instructor in some such classes as those proposed, rather than in the more or less haphazard, fragmentary way in which it was now acquired. If pupils went through a year or two of such a course, they would enter an office better prepared to learn what they required to know than if they went into the office straight away. To be quite candid in the matter, he must confess that he had had one uncertainty in regard to these proposals. It occurred to him several times that a young man, in going through a course of one or two years in the Association classes (especially in the case of a two years' course) might by chance think that at the end of that course he was a perfectly fledged architect, or fit to go to some office as an assistant, or even start in practice himself. Young men were so sanguine and were so inclined to rush in where others were more careful, that he had thought that this might prove to be a danger; and, certainly, if anything of that kind occurred it would be a great misfortune. We knew that to a certain extent trades had given up their practice of apprenticeship, and all who were concerned with building knew how great the loss of that system had been, and then no technical institutes could take the place of the old system of apprenticeship to a trade or craft. In regard to this fear he wrote to Professor Simpson, who had been carrying on at Liverpool classes of this sort for some time, asking him for his experiences; and in the course of his reply Professor Simpson said that there was not the slightest danger of men, after a short course of systematic training, thinking they could dispense with practical experience in an office. "I hold," continued the Professor, "that the system I have started here is superior to the American or French system, because it does not carry this theoretical and liberal teaching beyond a certain point, and obliges the student to supplement it by a further term of years in an office." That seemed to him (the speaker) to dispose of his little difficulty. The Association's scheme seemed to afford an excellent opportunity to young men who desired it (and, of course, if they did not care for such an opportunity they could let it alone) of taking a course of a year or two of systematic training before entering an office. One part of the education of an architect which was extremely necessary was a knowledge of the history of architecture, and that could be better imparted by an instructor than by the busy architect during office hours. Of course, buildings were erected, and could very well be erected, by men who had no knowledge of what had been done in past ages, but for all that he did not think there would be any one who would suggest that it was not desirable for an architect to know the history of his art, or possess a knowledge of what had been done in past times. Professor Aitchison, he thought, used to tell a story of a Bishop of London who at a dinner once sat next to an architect, and who remarked subsequently to some friends: "It is most extraordinary, I have been sitting next to an architect, and have been speaking to him about the Temples of Pæstum, and I found I knew more about

the temples than he did." We knew that a man might be a good architect and yet be ignorant about the Temples of Pæstum; but surely, as a matter of education, architects ought to know more, or, at least, quite as much, about matters connected with their profession as an outsider knew. The Bishop, as a cultivated English gentleman, had a knowledge of matters other than those which immediately concerned him, and in the same way architects should have a knowledge of things which were not immediately connected with their practice as architects. It would be a very insignificant profession if it dealt merely with knowledge necessary to carry out their work.

It seemed to him that the committee had done wisely in deciding that it was necessary and desirable to start these day classes: what had been done in Liverpool with success could be done in London. Then the question arose, was the Association the right body to carry the work through? Those who thought the Association was the right body might ask: what other body is there? Well, of course, there were other bodies. The Government, had already, to some extent, provided the means for the establishment of art schools all over the country, starting at South Kensington; and in many, if not all of them, architecture was part of the curriculum for students; but he believed that most architects would prefer that architecture should be taught by or under the control of architects themselves, for architects in such matters would be more likely to know what the requirements of students were than instructors who were not necessarily architects at all. Then there were the County Councils to which people looked for most things nowadays. They did most things that were wanted of them, and no doubt they might start architectural schools. As a matter of fact, the London County Council had started an excellent technical school quite close by, where architecture was taught to some extent; but the same remark applied to them as to the Government schools. The Royal Academy had an excellent free architectural school, but it was very properly required in that school that before students could enter they must possess a certain knowledge of architecture, and must have proved to some extent their capacity. That requirement was insisted on in regard to all art students. The Academy did not undertake to find out whether a man was likely to be a painter or an architect, but if he showed certain knowledge and capacity the student was instructed for nothing, and so really the Academy school was the goal for a student *after* being through those classes. Then there was the Royal Institute of British Architects. Well, the Institute might possibly take up this work, but it had not done so, and therefore the opportunity appeared to have arisen for the Association to distinguish itself by at any rate making a start in this matter.

As to the risks which they ran, it might be asked whether a body of young men should run any risk, and was it a scheme that young men should attempt to carry through? He thought it was, because no one else was attempting exactly the same thing. Their President and the Committee saw that the Association had premises for which a heavy rent was paid, and which premises were at present only used in the evening, being vacant during the day. It was thought that the day classes might be started practically without paying rent, which was a good business proposal. The Committee had also had the foresight to realise that the members of the Association should be free from any financial risk in starting this scheme, and consequently it had been arranged that any possible losses which might arise in consequence of students not joining the classes should be covered by promises of help which would absolutely free the Association from any financial risk. It was really a case of "heads, you win; tails, you don't lose;" though there was really a very great chance that the classes would be successful, because they would meet a want. If that were so, the Association would have laid all their young professional brethren under considerable obligation in starting the classes. If the Association did not start these classes now, it was obvious that they would not be started for some time, and some other agencies for supplying the want might arise over which the Association would have no control. It was possible that in the future these classes might so develop that other assistance might be required, but that necessity had not arisen yet. Therefore, as a member of the Association, he thought they should make the experiment in order to see whether the classes were wanted. The scheme which the Committee had drawn up might have to be altered or varied as occasion required; but it seemed to him, for a start, that it would answer very well, and if that meeting gave its general approval to the scheme, instructors would be obtained, the scheme would be advertised, classes would shortly start, and it would then be seen whether students would be willing to come forward. That would depend, he thought, to some extent on how far the senior members of the profession would assist in the matter, and that could not be known until the scheme was really started. When started, a practising architect, when a parent brought his boy to him for the purpose of articling him, might help the scheme by saying to the parent: "Let your son take a year's course at the Association schools, during which time it will be seen whether the boy is likely to take to the work, and if he does, at the end of that term I shall be pleased to take him into my office." If members of the profession would assist in that way, he felt sure the scheme would be a success. He intended to take that course, and he believed that other architects would do the same. It might be said that a young man could not afford to give a year of his time as proposed, and then go into an office; that, however, was not a real difficulty, because there were many men now who could and did spare the time to go to a University, and then enter an office to be articled. There were many men practising now who had done that to their great advantage, and their three years at the University had not been thrown away, for they had been enabled in that way to learn their art afterwards far more readily than they otherwise would have done. He had followed this course in regard to his own son, and he believed that the knowledge he thus acquired would enable him to make up for what might appear to be lost time. If the classes were financially successful, as he believed they would be, the Association would be able to expand its work considerably. Any one who knew the premises at Great Marlborough-street knew the need of more accommodation there, and it was probably known that with the present means at the disposal of the Association it was difficult to obtain the necessary extension. He had served for some time on a Committee for the acquisition of new premises. Several apparently promising schemes which they would have liked to carry through had been gone into, but when they came to the question of cost they had had to put aside those schemes as impossible. If, however, these classes succeeded, there would be no such word as "impossible" in connexion with any work the Association might undertake. He, therefore, proposed that the classes should be started, experimentally at first, and that they should undertake them on the lines indicated. He hoped that they would all do what they could in this very important departure in the work of the Association—a work which would be beneficial to all, and especially to their professional brethren coming after them.

Mr. John Slater said that after the exhaustive way in which Mr. Webb had brought the matter before them there was very little for him to say in seconding the motion. The fact was that somebody—some institution—was bound to take up this question of the systematic education of young men who were going to be architects, and if the Association did not move in the matter now it might be too late usefully to do anything later on. There might be some feeling among members of the Association, especially among elder members, that the Association was going beyond its proper sphere in entering upon this scheme, but in his opinion it was too late in the day to give effect to such opinions should they be held. When the system of voluntary education, which was the *idée mère* of the Association came to an end, and when, after that very exhaustive inquiry into what was likely to be of benefit to the Association and students, Mr. Leonard Stokes carried his scheme of a regular system of education, the Association was bound to take up the system of day classes if the evening classes and the Studio work became, as they had become, a success. He did not know whether it was because of changes which had come over the method of living during the last thirty years, but we now gave more time to recreation and to matters apart from our work than we used to, and he was afraid it was impossible to expect young men who were going in for any profession to give up evening after evening all the year round for study alone. Therefore he thought they must have some system of day classes. As Mr. Webb had said, a good deal of the success of the scheme would depend on the senior members of the profession, but he thought the success of such a scheme depended far more upon putting the merits of it carefully before the parents and guardians of the rising generation. He quite agreed that a pupil would be of far more value to an architect, and would be able to learn his profession far more quickly if, instead of entering an office immediately after leaving school, he went for a year or two into classes such as those proposed; he would become a far better man all round. There might be a feeling that the institution of these classes would clash with others which were now running in the metropolis. As to that, he might say that the committee appointed to inquire into the whole subject carefully considered that point, and came to the conclusion that the style of class which would be recommended would not clash with anything being done in London at the present time. As to the advantage of a young man entering such classes on leaving school rather than immediately entering an office, he was quite sure that any one who knew the enormous advantage of a few years of study at a University would agree that students who made use of such classes would have a far better chance to better their education. Most of them knew what had been done in Liverpool and Manchester and elsewhere, and it was necessary that the same facility should exist in London. He hoped that the day classes which were proposed would be as great a success as the evening classes had been.

The Chairman said they would be glad to have some remarks from Mr. Stokes, the father of the present educational system of the Association.

Mr. Stokes said he could not claim to be the father of the system, although his name had been associated with it a good deal. It was true he did what he could, but he was greatly assisted by a very influential committee who did most of the work. He was very glad to think that the evening classes had proved a success, however, and he hoped that the Association would be encouraged to go on with the work they had begun, and on lines which in those days, when they first began to teach, were considered very radical and improper by some of their members. If the Association could work evening classes, he thought it ought to be able to work day classes, though, of course, there were great difficulties to face. One important difficulty was as to getting a thoroughly good staff, and a great deal would depend on the staff of professors, or whatever they called them. No doubt the committee would deal very carefully with that point, and would not clutch at the first men who came along. One great recommendation for day classes (he spoke from his own knowledge) was that as there were many parents who objected to their sons being out late at night, a scheme of day classes would be welcomed by them. He did not see why there should be any hesitation at all in regard to the committee's proposals, for it could not fail to be a good thing for a young man to have some technical training before he went into an office. In an office it was very difficult for a green youth to pick up knowledge which would be of use to him, and it was months before he was fit to absorb the knowledge which was spread before him or hidden away behind him, and unless he could discriminate he lost much time instead of acquiring knowledge which would be of use to him. The more pupils knew, the more easily they learnt; and if they were grounded pretty thoroughly in some preparatory classes, and taught to know certain technical terms, and how to understand a drawing, they were more ready to learn from their architect master all he had to teach. The students would learn in the school what all such things as principals, joists, mullions, &c., meant, and that was the real reason why he was in favour of this proposed scheme: it would not only prove a good thing for the pupil, but it would be good for the principal. It was an intolerable nuisance when one had some absorbing work on hand to have to instruct some raw youth in the rudi-

ments of his profession, especially as that could be better taught by some one who had more patience. He thought the Academy School set them a very good example. The Academy School existed to teach architecture, not how to use a T-square—that must be learnt elsewhere. Why should not an architect insist on the same conditions? "I should like to teach you to be an architect, but you must learn first to use your T-square and instruments, and when you understand something about the profession I will touch you up a little." If architects were to say that he thought it would be to the benefit of all parties.

Mr. A. S. Tayler asked if the scheme had been prepared with the idea of being of advantage to those gentlemen who had already entered into a three years' pupilage. As to proposal No. 8, would it not be better to leave the terms to be settled by the committee rather than to pass a hard-and-fast resolution? There might be students who would like to attend the school one day or two days a week; apparently they would have to pay the full fee if recommendation No. 8 were left exactly as it stood.

The Chairman said that the day classes would be under the same regulations as those which governed the evening school, and under by-law 2, the arrangements for the payment of lecturers, instructors, and visitors, and the fees to be charged, were left to the committee. They would be perfectly free to vary the fees in certain cases and to take a smaller fee for a partial course. Professor Simpson had assured him that at Liverpool, in the earlier years of the school, there had been a good many casual students, who were no doubt articled in offices and who wanted to take up special subjects in the Studio or classes. No doubt the Association would have students who would take up part of the course, and the fees would vary accordingly.

Mr. Arthur Stratton said he had had a little to do with the system of day training in the Liverpool school. From the time of the foundation of that school he had, until recently, been Demonstrator and Lecturer under Professor Simpson, and he had seen the working of the whole thing. It was rather begging the question nowadays to ask whether such education was needed. Perhaps, if there were no irritable or impatient masters like those referred to by Mr. Stokes, the old system of pupilage might continue to answer, for it had many fine points to recommend it; but the fact remained that, for some reason or other, it did not now answer, and there existed no systematic education for the architect. The Association had made a start with its evening classes, but they were not sufficient. A systematic course of education was certainly wanted, and among architects in Liverpool there was a sense of surprise that nothing had been done in London like that which was being carried out at Liverpool with success. It was actually a fact that young men wishing to become architects had gone from London and the South to join the Liverpool school, because there was nothing suitable in London. As to Mr. Aston Webb's fear that, after a two years' course, some young men might consider themselves equipped as architects, he could quite endorse what Professor Simpson had written on the subject. The success or otherwise of the classes would depend greatly on the teaching and the teachers. It was quite true that the Science and Art schools and Polytechnics did not teach architecture in the way the profession wanted it taught; it was done in a very amateurish way. The teaching, to be of value, should be done by practical architects and by men who had access to works in progress. One had only to take a student who had been through a two-year course to see how systematic was his knowledge as compared with that of the ordinary pupil. It was time gained, not lost, to a man who, because of his previous education in such classes, on entering an office as pupil or assistant, was of use from the commencement. It might be rather premature to discuss the curriculum, but there was one little point to which he would draw attention, and that was with regard to perspective being put in the second year. There was a three months' vacation, which he was afraid would always be a stumbling-block to the student, for imagine a young man in his first year being left to himself for three months! That difficulty did not occur in the case of an articled pupil; unless a man were a University graduate, or had had already a good training, he would probably waste those three months entirely. The first thing that a student should be induced to do was to go sketching during the summer vacation, but that he could not do without a knowledge of perspective, and therefore perspective should come in the first year. The Association was a vigorous body, and had done a great amount of good work in the past, and this movement could not be in better hands, and if the day classes were properly started and with enthusiasm, they would certainly be a thorough success.

Mr. Arnold Mitchell said that the question of the use the student would make of his time during the summer vacation had already been discussed by the Committee, and it had been suggested that the Instructor of the Studio would guide in some measure the studies which the student would pursue during the vacation. But he did not look at the matter quite from the point of view of the last speaker. The Cambridge vacations were long, and it might or might not be that the students wasted their time, but and with the facilities in architectural study which existed for working during the summer months (in measuring up old work, for instance), there was reason to hope that the time of the Association student would be far more profitably employed during the vacation in any event than the time of the University student. On the general question there was one point to which he would like specially to refer, and that was as to the way in which education and facilities for it had grown to be a necessity of the day. We should be beaten in the race if we did not take every possible care in this matter of education. The whole tendency of the present day was to educate, educate, educate. In trade, England for a long time held commercial supremacy; that supremacy was being rapidly overtaken; foreign trade was increasing by leaps and bounds, and England was losing in a great degree the supremacy she formerly held. What applied to trade applied also to the profession of an architect. Other nations were educating, and though we hoped and believed that we were still ahead in the matter of architectural education and practice, there was not the smallest doubt that other nations were overtaking us. That very afternoon a young Norwegian architect who was seeking employment called on him with a roll of his drawings, which amazed him and others who saw them by their excellence. There were something like fifty drawings, and it was a great pleasure to look at them. He (the speaker) was astonished at the quality of the drawings, and still more amazed when he was told by the young Norwegian that some of the drawings, and these not the least good of those submitted had actually been done during school days before professional life commenced. We did not feel this competition in England yet, but we were bound to feel it in the near future. Let the Association provide facilities for young men gaining that knowledge and experience which would enable them to hold their own in the time of struggle which was undoubtedly coming. Who would not be in favour of doing all they could to help forward their profession by assisting the study and practice of their art, so that architects of the future might have every possible chance in the race of life? They must do all that they could, collectively and individually, to forward this good work in every possible way.

Mr. F. G. F. Hooper said the scheme had been very carefully thought out and studied. They all desired to help on the work of the Association, and the education of themselves and fellow-members. The difficulty of the long vacation had been anticipated by the Committee, and it hadbeen thought that fellow-students in the Association day classes might be encouraged to spend their holidays together in that most enjoyable way by studying one or more buildings. As to perspective being placed in the first year, it was not likely that any student would attend their classes who had not already learnt the elements of sketching or drawing in perspective. He did not think the term "perspective" was intended to apply to sketching, but rather to the setting out of plans of work on paper in perspective. He most cordially welcomed the scheme and he wished it had been commenced long ago.

Mr. H. P. G. Maule said that if any one had come there that evening with doubts of the wisdom of the proposed scheme, those doubts would have been set at rest by the speeches they had heard. He had had considerable doubt, for it seemed to him rather a large undertaking, which would retard the acquisition of new premises; but after what Mr. Webb had said new premises seemed to be more of an accomplished fact than before. New premises were essential to the well-being of the Association, for the present ones at Great Marlborough-street were not worthy of the Association, and a great effort should be made to get more adequate premises. He was now inclined to think that the proposed scheme of day classes might help them to get what they wanted. Looking at the names of those who had assisted in the preparation of the scheme just submitted to them, the ordinary rank and file of the Association must realise that an immense amount of trouble had been taken and everything done that could be done to ensure success. Every member of the Association, therefore, should help on the scheme in the best way he could.

The Chairman said he had received the following letter from Professor Beresford Pite, who was recently appointed Professor of Architecture in the Royal College of Fine Arts at South Kensington:—

"DEAR PRESIDENT,—I am sorry to see in the current number of A.A. *Notes* the circular announcing the conclusions of the Committee on the day classes, including my name as though agreeing with their recommendations. As you know that I am clearly of opinion that the proposal is unwise in the true interests of the A.A., I rely on your explanation to the meeting this evening that I entirely dissociate myself from the recommendations of the Committee to the general meeting. An important business engagement will prevent my attendance to-night.—Yours truly,

BERESFORD PITE."

The Chairman said he was sorry if there was any reason for Professor Pite's criticism on the way the circular had been sent out. He did not see that there could be, because Professor Pite's name was still on the Committee which drew up the new scheme of day classes. Professor Pite had never withdrawn his name from the Committee, and he was the only member who had withheld his support from the scheme. He was very glad to hear Mr. Mitchell's remarks, for the matter was an important one. The Committee was fully alive to what education meant, and they did not believe it consisted in cramming a lot of facts into the student, and in working out the scheme they would remember that *education* meant the opening of a man's mind in all directions and the guiding of students in their training and practice. They would try to make the system as flexible and comprehensive as possible, giving to the student's mind that information which was necessary to enable him to work out those problems he would be called upon to solve; and they would endeavour to make the student as susceptible as possible to every influence that would be of value to him as an architect. As to new premises, the matter had not been lost sight of, and when the day classes were properly started an opportunity would no doubt present itself for getting better premises. Even if within the next two or three years they did not get sufficient money to build new premises, there was no doubt that they would then be able to rent larger premises. The Committee had it in their minds to make an urgent appeal shortly in the matter. Already they could see their way to 1,500*l.*; three gentlemen had promised 250*l.* each. The whole thing looked very hopeful, but the difficulty was to get a site, and members of the Association might help forward the matter by making inquiries, wherever possible, for a suitable site near Oxford-circus in a street sufficiently dignified for the purpose. As to the day classes, they knew the Institute would help them by calling the attention of its members to the matter, and would ask the profession to afford every facility to pupils to attend the classes. As to the three months' vacation, if the students were worth anything they would make good use of their time and would be envied by the articled pupil.

Mr. G. B. Carvill said that the hearty thanks of the Association were due to those gentlemen who evening after evening had given so ungrudgingly time and consideration to the scheme. The Association must be very grateful to them, and especially to Mr. Aston Webb for putting the matter before them as he had.

The Chairman said he must endorse the remarks made by Mr. Carvill, for the Association was greatly indebted to those gentlemen for their invaluable help. It only remained for him to put Mr. Webb's motion to the

meeting, viz., that the Association adopt th Committee's scheme for the establishment of day classes of instruction in architecture.

This having been agreed to unanimously, the following amendments and additions to the By-laws, consequent on the adoption of the Committee's scheme, were agreed to :—

Add to By-law No. 14, "Each student who has paid the fee for the first year's course of day classes shall be eligible for election as an ordinary member without payment of an entrance fee."

Add to By-law No. 15 after the words "Each ordinary member" "(with the exception stated in By-law No. 14)."

Add to By-law No. 27 at end, "or one of the Hon. Secretaries."

Add to By-law No. 30 before the word "Auditors" "Honorary."

Add to By-law No. 36 the word "Honorary" before "Auditors" in every case.

By-law No. 43 to read as follows :—

"A special general meeting shall be called when required by the Committee, or at any time, not less than two weeks nor more than eight weeks, after the receipt of a requisition stating the purpose for which the meeting is required, and signed by at least twelve ordinary members. The presence of twenty-five ordinary members shall be necessary to constitute a quorum at any meeting called under this by-law, and in each case the agenda of business to be considered, specifying the place, day, and hour of meeting, shall be duly posted up in the premises of the Association, advertised, sent by post or otherwise, as may be determined by the Committee, at least one clear week prior to the meeting, and no other business shall be taken at such meeting."

Omit By-law No. 44.

Add the following new By-law :—

"No member of the Committee shall be appointed to a paid office or Lectureship in connexion with the Association."

The meeting then terminated.

MAGAZINES AND REVIEWS.

THE *Architectural Review* (Boston), vol. vi., No. 7, contains an article on and illustrations of the work of Mr. F. Lloyd Wright, an architect who seems to have made a good many original experiments in house-planning and the exterior treatment of houses. The whole of the plates are occupied also with illustrations of his work, in a style of quasi-ornamental drawing which is rather pretentious and not very attractive. There is certainly cleverness in Mr. Wright's work, but not the feeling for architectural treatment; the illustration given of a high building (no title) looks quite absurdly like a Brobdingnagian bookcase or cabinet; there is no sense of scale about it. No. 1 of Vol. III. contains an article on the formal garden of Longleat, and a more important one by Mr. Robert Brown, on "English Half-Timber Architecture," which, however, the writer says distinctly he does not advocate the revival of; he is only considering it as a beautiful chapter in old English architecture. In regard to the overhanging of the upper stories, he suggests that this was really to preserve the lower part of the walls from weather, and not for want of space, as this overhanging is found in country houses in isolated situations as well as in towns. But it is perfectly possible that its use in country houses is only an imitation of a practice first used for economy of space in cities. It must be remembered also that in any case it means economy of foundation walls. The illustrations include a bird's-eye view of the proposed buildings for Washington University, St. Louis; an immense scheme, in which, so far as we can judge from the small views of the buildings in the drawing, English Elizabethan types of University buildings seem to have been taken as a model. We do not think that there could be a better model, and perhaps there is an æsthetic consistency in repeating in the New World the architectural type of the universities of the Old World, which have formed to some extent their educational type also. A number of detail sections of various portions of the proposed buildings are given.

The *Berliner Architektur-Welt* contains a number of illustrations of recent Berlin house architecture, half-timbered villas for which we have little admiration, and a more dignified and solid stone structure, the villa Ernst Hester, in classic style and very effectively decorated with sculpture, which is an exceedingly good example of the superior class of domestic architecture. Herr Ravoth, of Berlin, is the architect. The German architects are nearly always good in this kind of Classic and sculptured house; it is in the "picturesque" villa style that they fail. There are a good many examples of modern decorative work, among which some open-work metal screens for heating apparatus (*heizkörper-verkleidung*) are worth notice as being in artistic treatment quite beyond the usual style of work for this purpose.

The most interesting article in the *Art Journal* is that by Mr. Solen, entitled "Pâte-sur-Pâte," and which is an illustrated description of the design and methods of the Sèvres manufactory. The illustrations are very beautiful both in themselves and in execution. The writer shows how artfully some of the materials used in Sèvres ware are fashioned to produce changing effects of light and colour to add to the charm of the work.

"A compound of bichromate of potash and alumina, fritted together, is used to produce the changing effects of the 'Pâtes changeantes' of the Sèvres manufactory. Its delicate shade of pink possesses the peculiarity of being highly intensified by artificial light. It lends itself to the following artifice:—A small quantity of the compound may be introduced (without producing any apparent alteration by daylight) into a blue or green paste; but when the mixture is exposed in a room illuminated by gas, blue and green are so completely altered as to become, respectively, bright lilac and warm red."

A Hungarian appreciation of Mr. Walter Crane is the subject of another short article, in which Mr. Lewis F. Day sums up some of the expressions in regard to the English artist's work which were made in the Budapest Press at the time of the exhibition of his works there.

The *Magazine of Art* contains an illustrated article on the "Decoration of the Grand Piano," by Mr. Aymer Vallance. In the course of it he suggests that the treatment of the modern heavy grand piano with sturdy legs at the angles but no central support is defective; but this is in accordance with the make of the instrument, the strong frame of which is necessarily entirely self-supporting; and the intrusion of central brackets or supports is therefore not only constructively unnecessary, but has the appearance and would probably have the effect of checking sonority; and in all piano decoration it must be remembered that the musical efficiency of the instrument is the first point, the decoration only the second. In our opinion some of the more elaborate piano decorations of recent days have had the effect of obscuring and making secondary the real object of the instrument—so much so that we are under the impression that these highly-decorated pianos are seldom or never found in really "musical" houses. What is wanted for the grand piano is not so much elaborate decoration as a well-considered shaping of the parts in accordance with the structure and function of the instrument. Mr. Vallance indeed points out, and quite rightly, that the design made by Burne-Jones, which is among the number illustrated, and which is a fine one in itself, is carried out entirely irrespective of the hinge in the front part of the lid, and that the exterior design is so placed as to stand on its head when the top of the piano is propped open. This is not decorating a piano; it is merely making it a surface for painting a picture on.

The *Artist* devotes an article to the work of the clever and original artist Mucha, a Parisian in work and domicile though not in name, with a number of his figure sketches. "A Summer Cottage" designed by Mr. Quennell is the subject of another article. The plan, we observe, is given without a compass, though this is surely a very important point in a "summer cottage."

Among the contents of the *Studio* (February 15) is an illustrated article on Mr. Frampton's sculpture decoration for the Glasgow Exhibition building; one on Maori houses, with the quaint wood carving, and some illustrations of the interiors of a new house, "Glen Park," near York, of which Messrs. Penley are the architects, and in which there seems to be a good deal of originality of decorative treatment.

To *Feilden's Magazine* Mr. William Brew contributes the first half of a valuable article on "Electrical Fires." Interesting photographs are given of tin, copper, and platinoid fuses at the moment of "blowing," and the different way in which the arc acts in these various cases is pointed out. When a tin fuse "blows" the arc is very much displaced, and may strike any live metal in its neighbourhood. This is a strong argument against employing double pole fuses under the same cover, as a disastrous arc may start between the positive and negative terminals. Mr. Brew is strongly of opinion that with the high voltages now in use a more suitable material for fuses than tin might be employed with advantage to the porcelain bases. He agrees with us in thinking that the insulation resistance between the mains ought always to be determined. He points out that when the voltage is raised from 100 to 250 the insulation resistance ought to be 6·25 times greater. He has come across cases where the section of the positive wire has been so reduced by electrolysis due to leakage currents, that it became red-hot when the normal current was flowing. This shows the necessity of a high standard of insulation resistance. We do not agree with Mr. Brew that a concentric system with the outer earthed is the system of the future. From the central station point of view there are many drawbacks to this system apart altogether from the electrolytic damage it would do to gas and water pipes. An article by Mr. Kilburn Scott on "Electric Driving of Textile Factories" is a timely one. It is extraordinary that while a Bradford firm supplies thousands of looms fitted for electric driving to the Continent, yet it sells none in this country. Mr. Scott mentions that the ribbon industry in the score or so of towns and villages about St. Etienne, in France, has revived owing to the establishment of a large public electric power supply company in the neighbourhood. This company supplies power to 2,500 ribbon looms, each having its own little ¼ h.-p. motor. The charge for power is ten francs per motor per month. We recommend any one who is sceptical about the suitability of electric motors for machine-driving to read Mr. Scott's article.

The *Engineering Magazine* has an article on "Engineering Opportunities in Asia," which gives some interesting information in regard to the manner in which modern machinery and methods are slowly penetrating into the Far East. There is another article on "American Locomotives on British Railways," the title of which is misleading; it should be "on British Colonial railways," for that is the real point; the engines referred to are all in use on New Zealand, Australian, and South African railways. The truth seems to be that since these Colonial railways are for the present but roughly constructed, the roughly finished American locomotive suits their work, and is more economical than the highly finished and conscientiously built English machine. That is not, it is true, what the writer of the article wishes us to conclude, but that is the conclusion we draw from it. The same number contains an article on "Electric Power Machinery in Iron and Steel Works," by Mr. S. F. Walker, which deserves study by all interested in the important industry of iron and steel making. Illustrated descriptions are given of various kinds of electric cranes which lift iron pigs, rails, and plates simply by the attraction of powerful electro-magnets. Magnetic separators are also shown which recover the iron from the waste slag left in the converter. The slag is first ground up into a powder in a mortar mill. It is then poured into the magnetic separator, round the drum of which are placed magnetic poles which magnetise the particles first in one direction and then in the other, so that the non-magnetic material clinging to them is thrown off by their continual rotations, and so the cleaning is done very efficiently. Mr. Walker rightly points out that motors are often designed on too small a scale, leaving a very small margin for emergencies, and the consequent frequent "blowing" of the fuses has unjustly discredited electric driving. Unlike steam-engines, the efficiency of motors is often greatest at a light load, and hence it is more economical to have the motor too large than to have it too small. It is stated that enclosed arc lamps have now displaced the large glow lamps which were formerly used for lighting the rail mills. In conclusion, Mr. Walker discusses the relative advantages of polyphase and direct-current systems, and sums up in favour of the former. In an editorial, Mr. Whitehouse's theory that the internal heat of the earth may be generated electrically by eddy currents in the earth's substance produced by magnetic lines of force between the earth and the sun, is commented on favourably. In our opinion, however, seeing that all the direct experimental evidence of magnetic observatories negatives the supposition of lines of force fixed in space, this theory is quite as untenable as the theory of thermo-electric currents enunciated by Lyell fifty years ago.

The *Nineteenth Century* contains an article by Signor Boni on "Strata in the Roman Forum." This describes the method of investigation he has been pursuing by sinking shafts through the various archæological strata, as he calls them, of the Forum, and the discoveries which have been made in this manner, and also in the existing shafts in the shape of ancient wells. More than thirty wells have been found in the Forum area, either of the Republican period, and sunk previous to the building of the aqueducts, or of the mediæval period, and sunk after their destruction. No well has been found which appears to belong to Imperial times, the aqueducts having then sufficed for the supply of water. Signor Boni says :—

"The interest of these wells is as storehouses, for they have preserved to us, among the earth and mud of which they are full, the innumerable miscellaneous articles which found their way into them. A rope wore out, or a pail broke ; a passer-by, lazy or mischievous, threw down something to try the depth or to hear the water splash ; things were thrown in to be rid of them, or accidentally pushed over the edge. The accumulations of a well may represent few or many years, according as it was frequently cleaned out, or was abandoned long before filling it up. Each is like a sealed packet 2,000 years old, with a value dependent on our power of appreciating it."

The same number also contains an article by Mr. R. C. Witt on the Romney portraits at the Grafton Gallery, which, however, as our readers would have already gathered, we do not think are of sufficient importance as to demand a special article. Romney at his best was a very fine painter, but his second-best works were hardly worth discussing in so serious a strain.

The *Monthly Review* contains an important illustrated article by Mr. Arthur Evans on his recent discoveries in Crete ; and an article by Captain Hart-Davis on "London—a Seaport," in the course of which it is suggested that a loan of forty millions should be raised on the security of the existing property in docks and wharves, and placed in the hands of a Trust to be used in improving the river and forming better key and dock accommodation. There is no doubt that the improvement of London as a port is a matter of the greatest moment, and the suggestions in the article should at all events receive consideration.

In the *Century* Mr. Birrell continues his articles on "Down the Rhine," with the illustrations by Mr. Castaigne ; they are interesting as considerations of a well-worn topic in a new light. Some "Personal Recollections of Brahms" by Herr Henschel will interest our musical readers.

In *Scribner*, under "The Field of Art," the subject of "French Architectural Decoration" is considered by M. Alexandre Sandier (we presume it is a French article translated), with special reference to the Sèvres manufactory exhibit at the Paris Exhibition. The article is, however, merely historical and descriptive, so far as it is carried in the present number ; it appears to be intended to continue the subject.

The *Fortnightly Review* contains an article by Mr. H. Heathcote Statham on the Loan Exhibition of Pictures at Burlington House, mainly occupied with the consideration as to which of the artists deceased within the last fifty years best stand the test of the revival of their works. The absence of any representation of either Maclise or Creswick in the exhibition is noticed.

The *Pall Mall Magazine* has an article on Castle Howard and its contents, by Lord Ronald Gower, who, however, has little to say about Vanbrugh's architecture, except that the general effect of the building is "sublime" ; the article is mostly occupied with the history of the family connected with the house, and with the works of art contained in it. The numerous illustrations add, of course, much to the interest of the article. The same number contains also a short article by Sir Robert Ball on "Signalling to Mars," not, as may be supposed, a code of directions for the purpose, but the common-sense demonstration of a practical and clear-headed man of science as to the utter impossibility of signalling to Mars by any means within present human knowledge. It is an article, in short, calculated to put an end to a good deal of nonsense which has been written on the subject.

The *Revue Générale* has an article by M. Eugéne Gilbert under the title "Impressionistes et Critiques," which is really a criticism of various art criticisms, and serves to give a kind of summary of some contemporary French opinions on matters artistic. It appears that there are some critics of the day who are very bitter against the Paris Exhibition. A M. André Hatlays is particularly sarcastic about the Exhibition architecture, in which we certainly do not agree with him; and about the expenditure of so much money and labour on a temporary spectacle. On that head there is certainly something to be said.

The *Essex Review* (quarterly) contains an article on the subject of "The London Littoral," the scenery and small towns on the Thames banks below London, particularly written to urge that some of them at least should be left as they are. That, however, is not in the power of any law or any argument, we fear, to accomplish. A historical and biographical article on "The Dunthornes of Colchester,"—two artists, father and son, who lived there in the eighteenth century, is interesting, and is illustrated by reproductions of some curious old prints.

The *Quarry* contains a long and important article on "The Building Stones of London," with some photographs from portions of old buildings to show the wear of the stone, and an alphabetical list of buildings and stones referred to in the article.

Among the contents of *Knowledge* is a summary by Mr. Crommelin of the total solar eclipses of the twentieth century, with a chart showing the track of totality for each one. The series of articles on the size of ocean waves is continued.

We have received also *Harper* and the *Gentleman's Magazine*, neither of which contains anything which it comes within our scope to comment on.

THE SURVEYORS' INSTITUTION:

THE PRESENT CONDITION OF THE BUILDING INDUSTRY.

AN ordinary fortnightly meeting of the Surveyors' Institution was held at Great George-street on Monday evening last, Mr. John Shaw, President, in the chair.

Some donations to the library and library fund having been announced, and a vote of thanks passed to the donors, the Chairman called on Mr. H. Chatfeild Clarke to resume the discussion on the paper by Mr. Thomas Blashill, read at a previous meeting, on the "Present Condition of the Building Industry."*

Mr. H. Chatfeild Clarke said that Mr. Blashill had referred to the employer and to the necessity of showing him more consideration. That was no doubt true, but one thing to be insisted upon was that the employer should tell his architect everything, keeping nothing back, and should treat him as he would his solicitor. Often the client only told half the facts, and that was not quite fair to the architect or surveyor, who would respect confidence as much as the solicitor. Once the drawings and specification were completed, and the contract signed, he had been taught never to depart from it, except for very good reasons, and not alter a specification without very careful consideration ; rather complete the building and then alter, than alter when in progress. Slight variations led to all sorts of trouble. Mr. Blashill had written some very wise words regarding the employer who took every advantage of a contractor. Many employers seemed to think they could bind down the builder and do any shabby thing, such as they would not think of doing to any other tradesman. The architect should hold the balance fairly between the parties. As to the selection of the builder, the whole success of the building depended largely on that. The architect must be responsible for the builder selected, and should the client do the selection, it was always well to warn him, unless one knew the builder, that he must take the risk of the selection ; for it was perfectly impossible for an architect to teach a builder (although a builder would not allow that he wanted teaching), nor were they paid 5 per cent. to play the detective. Mr. Blashill suggested that they should prepare full-sized details before the tenders were obtained. That was a most Utopian idea, and he thought that if an architect supplied ½th scale drawings with ½-in. details, the quantity surveyor could take off from them. Surely that was sufficient for the quantity surveyor ; besides, one must have some power of varying details as the work proceeded. Of course, it was important not to hinder the builder in any way, but it did not seem practical to give him full-sized details before the job had started. The difficulty of speed was largely controlled by materials, and one of the materials to avoid if there were to be no risks of delay was terra-cotta. As to quantities, the employer's architect very often recommended a quantity surveyor and selected one, but it was a very usual course in any large job for the builders to select a quantity surveyor and the two surveyors to take off the quantities between them. That seemed to be a very fair and proper system, and one to be encouraged. He saw no necessity for making the quantities part of the contract. The quantities were only a means of obtaining tenders and prices ; they were not part and parcel of the specification from which the job should be carried out. But it was wise to price them out and deposit them to measure variations upon. As to subletting, that was a very important question, and there again the architect must retain the power of selecting certain materials as well as the firms who tender, and put the amount of the lowest tender into the builder's contract. The builder should bind down the sub-contractor to time as he himself was bound down. He agreed with the author that most of the trouble in building work was avoided by clear drawings and specifications before the works were commenced, and nearly all disputed accounts which had come before him had arisen from want of proper drawings and specifications, and the interference, perhaps, of the lady client. It was a most important point to be remembered by young men in the profession that drawings and specifications should be perfectly clear ; while it was especially unfair to builders and contractors when they were not. He did not agree with Mr. Blashill that the quantity surveyor should write the specification, for he thought it was the architect's business to do that, but the quantity surveyor could correct it from the quantities. As to Mr. Blashill's remarks about American buildings and the promptitude with which they were erected, he would like to know what the width of the streets in the States was where these monstrosities were put up. A building of from eighteen to twenty-six stories would have a height of from 180 to 200 ft., and was it wise in any city to have such buildings unless the streets were of abnormal width? Healthgivers were light and air and sunlight. The healthiest streets in London were the East End streets—Whitechapel-road, Mile End-road, and Commercial-road—beautifully wide streets with low buildings on either side. The most dismal and draughty and unpleasant street was surely Northumberland-avenue, where very little sun got, besides being draughty, cold, and dull. The great height entailed much greater risks from loss of life by fire. Rather than build such high buildings he would prefer to take people a little further out, into the suburbs, where they would get more light and air. Mr. Blashill touched very lightly on a delicate subject, viz., the question of an architect's office in a builder's firm. Although Osborne and houses in Park-lane had been built by builders with an architect's office, although they might be good architecturally, and although there might be many competent architects in builders' firms, if that system were pursued the desirable check of the architect on prices and materials, and on the non-waste of materials, was done away with, and he thought the practice ought to be discouraged in every way. As Mr. Blashill said, the most satisfactory way to build was to build on a schedule of prices, and all in that room would wish to carry out their work in that way ; but few young architects had, as a rule, enough weight to have their work so executed; but still it was the fairest way, and gave the best results for money. As to speculative builders, there existed also a class who might be better described as financial architects, who were very much in evidence in London just now, and did great harm to architects by taking sites at ruinous ground-rents, out of which no man could live, and on which they put up buildings. This had a serious effect on legitimate building, for it stopped genuine speculation. They were really not ground-rents at all, but half ground-rents. The practice was very much to be deprecated. In regard to the labour question, they should all approach it away from politics. It was much too important a question, for it was associated with the success of the country, and must be approached from

* See our issues for March 2 and 9.

the point of view of the good of the community. He had always felt that the question was approached from two different sides, and for the good of the few and not for the many. Since 1870 there had been such an education as had never been dreamt of before, and a serious question was whether it had been the stepping-stone for their improvement and the improvement of the country. And had it helped the people to look the future fairly in the face? There was also the much bigger question of technical education, against which he had not a word to say, especially as he knew what good work was being done by the City Companies, such as the Carpenters, Plumbers, Drapers, and Fishmongers. But what had the technical schools done towards fitting the artisan towards getting a living, for that was the practical point? Did they help a man to do his work when he left them? Hundreds of men attended these classes; what proportion turned out good craftsmen? Some time ago he went to a large manufacturer to inspect some models, and he asked the head man what number of men coming from technical schools were good craftsmen, and the answer was that the number was very limited—practically none. That was a sad observation to make, seeing what was spent every year in this work. Any one who had had anything to do with colour—even the simple painting of a door of a house in two colours, in contrast—would realise how difficult it was to get a workman to do this satisfactorily. It was all very well while one stood over the man, but if they left him to do it, the chances were that the work would have to be done again, and one would have to mix the colours oneself, for the workman seemed neither to care nor to take the trouble to appreciate the elements of colour. He believed there was in London at the present time a great opening for a colourist, or a combination of them, who could colour simply and well, and not at an extravagant rate. If, therefore, technical education, although useful, failed to produce men who could put their learning into practice, what was the remedy? In his opinion it was to go back to the old system of apprenticeship. A lad should be put with a good craftsman and be bound to learn his trade, and not dragged up to his trade and polished off by some technical class. He could not understand why workmen should object to the system, for if the number of workmen was limited, so the scope and amount of trade was limited. That was a political economy question, but that seemed to him to be the result; and he would ask the workmen and the unions to consider the question seriously, and in this light. Until the system was encouraged again and masters took a pride in their apprentices, so long should we suffer from incompetent workmen, and men with no love for their trade, and who merely looked upon it as a means of livelihood. Nobody doubted the legality and usefulness of trades-unions to their members, and they had doubtless been a necessity to prevent sweating; but were the unions looking well to the future, and considering all the problems of the questions of supply and demand, capital and labour? Were they not looking too much to the present and the "flesh pots of Egypt?" Had not the limitation of hours and the amount of work which by unwritten laws they enforced a tendency to drive capitalists to seek labour elsewhere? and was that not a serious question for them all? He recently had an illustration of this, when a London architect, who was building a house for himself, told him he was using Swedish doors and sashes because they were good and cheaper than English work. That architect had no desire to buy foreign goods, neither had he (the speaker), but the result of those unwritten laws he had referred to was to drive employers to seek labour elsewhere. During the carpenters strike seven or eight years ago, a leading London firm of builders was seriously considering the question whether to set up works in Belgium where labour could be got without trouble and undue expense. What he feared was that the unions were making work so expensive that they were crippling trade, and was not a steady and increasing trade a necessity for the country? In the current issue of the *Nineteenth Century and After* was an article by Mr. W. Woodward on the question, in which the writer gave the Board of Trade returns showing the enormous rise in wages of 115,000*l.* per week in 1899 compared with 1898, and in eight months in 1900 a net increase of 150,000*l.* per week, by far the greatest rise recorded in any similar period. Were mechanics really better off for that? They certainly ought to be; and were they putting money by for the future? The mechanic was better paid than clerks, and if he worked had he not as much or more chance of success as the clerk? There were such positions as foremen, overseers, &c., open to the mechanic, and altogether his life was not without interest and not without hope for the future if he worked industriously. But did the men with this increased pay really work better in the limited hours or not? He was afraid there would be but one answer by any one who had been on works and seen how the men worked. He had no hesitation in saying from an experience of twenty years that they did not. The men seemed to think that restrictions on output were good for them and made work for men on the streets; but, of course, that was a fallacious argument. They were trying to step in between supply and demand and create an artificial state of things which could not last long. He thought it was most important that the trades-unions of the country, powerful as they were, instead of fighting the employers, should, as much as possible, pull together with them and strengthen their trade. There was no better way to do that than to have a proper system of apprenticeship through all the trades, and so teaching men their trade thoroughly.

Mr. H. Lovegrove said that Mr. Blashill was certainly right in insisting that good pay should be given to clerks of works, so as to ensure good trained men, and not men who were only good foremen. It was very desirable to get good clerks of works, and he thought that good ones could generally be got from the Clerks of Works' Association. Many architects had to make a stand for fair treatment of the builder at the hands of a grasping client or committee. Some people seemed to regard a contract as a sort of lottery, and their idea seemed to be to get the main contract settled and then grind as much as they could out of the builder. As to sub-contractors, it seemed to him that the contractor should appoint the sub-contractor under the very same conditions as he had been bound under. Delay was frequent under the present conditions, and sub-contractors for terra-cotta and ironwork were frequently at fault. As to commissions to architects on introducing business, that was an utterly wrong principle, and nearly all architects, certainly all good architects, would have nothing to do with firms which made such offers. Unfortunately, some people seemed to think that the practice was a common one, and it was even said that the builder gave the architect a commission. As to builders not being practical craftsmen, he thought that provincial contractors, as a rule, were more practical than London men, the London men having much to do with financial matters, and some of them were not "builders" at all. The country builders were brought up to the business by their fathers. The larger class of speculative builders was doubtless very injurious to the profession of architects, for they built in a wholesale way, though not always with the best materials. As to apprenticeship, much had been lost by giving up the system. In the old days men learnt their trade thoroughly, and never thought of attending evening classes; still, the artisan ought to attend evening classes now, so as to get theoretical as well as practical instruction. The building trade was looked after very closely by trades-unions and the authorities, but other trades and callings were left alone. No one seemed to think of the big carriers and the hours of their men, but the workmen in the building trade were protected in many ways. The paper had dealt with another important matter, which was intimately connected with the difficulty under the present conditions of dear land, high rate of wages, and cost of materials of providing houses for the very poor.

Mr. J. Randall said that Mr. Blashill was quite right in saying that before a building was started the drawings, specifications and details should be placed in the hands of the quantity surveyor. It was quite impossible for the quantity surveyor to take out quantities from the crude and incorrect drawings sometimes sent out from architects' offices, and it was unfair to client and builder, for it was simply impossible to make an estimate on improperly prepared drawings. A great deal of trouble arose from defective drawings and specifications, and if large bodies like the Office of Works and other Government Departments could give proper drawings surely architects concerned in buildings costing large sums of money could get out proper drawings and specifications. He was carrying out work for the Government now which was costing three-quarters of a million, and he had no trouble such as he sometimes had with architects, who gave a little bit of the ironwork, masonry, or woodwork at intervals. As to Mr. Blashill's remarks about steelwork being now prepared by some builders, his firm turned out upwards of 2,000 tons a year. It was no more trouble for them to buy steel than the experts, and his firm prepared nearly all their steelwork, and that was largely the practice in America. That lesson might be learnt by every one, and there would be no need to call in the expert, who had to get his profit. It was too often the fact that this expert got most of the profit, and it was impossible to tie him down or claim for delay, for he would ignore the builder, except for payment, saying he was employed by the architect. He was decidedly against provisional amounts going into estimates, and he might say that the Government did not allow it. As to technical education, we get a lot of it now, but that did not seem to produce better workmen. Of course, much work was now done by machinery, and the workmen did not, for instance, cut out his wood and do the labour himself as used to be the case. The result was that there were no apprentices, and as long as a man belonged to a trades-union he could consider himself a mechanic. The old mechanics were dying out fast, and he was quite sure that if this country was to hold its own they would have to go back to the old apprenticeship system. Another point he might mention was that it was almost impossible to get merchants to agree to time bargains, for they had a clause to protect themselves in the case of strikes. For that and other reasons, a large quantity of materials came into this country from abroad. Probably nine-tenths of the glass used in this country came from abroad; there were really now only about two glass firms in this country. It was the same with the cement and steel. He gave an order about twelve months ago to an English firm for steel, and he had not yet got the whole delivery. He gave an order to a foreign firm in November last for a similar amount, and he had got the whole of the goods. He would give another illustration of what the trades-unions were doing for the country. The other day his foreman said they wanted a new machine for moulding sashes. They sent to two or three English firms, and those firms could not do the work in less than from three to six weeks. A German firm supplied the machine in seven days.

Mr. C. John Mann said, as to Mr. Blashill's remark that the employer was entitled to more consideration, the employer generally knew about what amount of money he wished to expend, but that amount was very often exceeded by the estimates, to the annoyance of the employer. That annoyance could be prevented to a large extent if an approximate estimate were made by the surveyor and submitted in writing to the employer or architect. If that were done, a great deal of trouble would be saved to all concerned. Another point, on which quantity surveyors were very sensitive, was as to mistakes in quantities, though, he thought, mistakes were not often made, and quantities should not be made a part of the contract on this account. Mr. Blashill might have been a little clearer as to what he meant by "reasonably priced quantities" forming the basis of the contract. Was that to be ascertained by the quantities being opened? and was that to be done before the contract was entered into? How was it to be ascertained that they were "reasonably priced" and a proper basis for a settlement of accounts? He did not think it was always a good thing for quantities to be made the basis of a contract. He differed from Mr. Blashill where he said that a fair settlement was impossible with extensive changes in a contract. It was quite possible to obtain a fair settlement, and with carefully taken out bills of quantities he saw no difficulty in arriving at a perfectly fair settlement of any amount of variations, and it would be a great mistake to restrict the employer in making alterations in his building if those alterations would make it more satisfactory to him. He hoped they would not see in this country any of those lofty buildings to which reference had been made, whatever the

width of the street might be. He believed it would be a great gain to the country if the apprenticeship system could be reintroduced in the building trade.

Mr. H. H. Bartlett (Perry & Co.) said as to sub-contractors, that was a sore point with builders. Where there were sub-contractors (and they had in some cases become rather numerous) the chief contractor had little control over them, for the sub-contractor was appointed practically by the architect. The builder was very strictly tied down, both as to time and the manner of carrying out the work, but he had little or no control over the sub-contractor. That was a difficulty which it was quite within the power of architects to remedy ; and if architects could do so, and there was more confidence in the chief contractor, then buildings would be erected in a far more satisfactory manner. As to technical education, the results so far were very poor. In his opinion the British workman was not in the slightest degree more intelligent than he was thirty years ago, and though there had been time for great improvements, the result of the expenditure of mind, time, and money on education was not what might have been expected. The introduction of foreign manufactures would very probably increase, though trades-unions were not entirely responsible for that. One cause of that was that rents, taxes, and outgoings were less in those countries where joinery, for instance, was produced, and steel and iron manufactures put together, than they were here. That meant a great deal in the course of a year. In this country the manufacturer was taxed with very high outgoings and in many ways the cost of production was enhanced as well as the cost of labour. Again, with foreign joinery, a great deal of stuff which would otherwise go to waste was turned into mouldings and different portions of joinery. The stuff was not worth shipping as raw material, though it was as manufactured goods. All that did away with waste. Still the cheap foreign article was the result of cheaper labour as compared with British labour. He agreed with what had been said about apprenticeship, and he thought workmen themselves were beginning to see the folly of their ways. He had found it much easier recently to get apprentices than it was a few years ago. During the time of good trade, when work was plentiful and men scarce, inferior men, so-called mechanics (really men who had never properly handled a tool) were forced into the ranks of the mechanics and the contractor had no help for it, for the work had to be done somehow, and the contractor had to take the best men he could. He was sorry that the trade unions, though professing to have none but good mechanics in their ranks, did not see that that rule was carried out, for whatever the unions might say, they could not supply all good workmen. He was amused by Mr. Blashill's remarks about having had access to some trades-unions' books of rules, &c., and with Mr. Blashill's view that there was little to complain of in those rules. He (the speaker) had read some of those rules, and he saw nothing to complain of ; but it was not the written, but the unwritten, rule that he complained of—the rule that marked a man if he did more than a certain amount of work. One saw nothing of such rules, nor of the rule that a workman should dictate what sort of work belonged to him ; but those unwritten rules existed among the men, and were carried out very loyally. The result was serious for the country, for it greatly enhanced the cost of building, and superior workmen were held back from getting the position they ought to reach, simply because the standard of work was brought down to the meanest capacity instead of being raised to the highest capacity.

Mr. H. R. Taylor, L.C.C., said, as a workman himself, he was very much concerned about one or two of the labour points raised in Mr. Blashill's excellent paper and in the speeches they had already heard. Mr. Blashill had mentioned the old-time method of getting out joiners' and masons' work, and had referred to the excellent character of the work. He quite agreed with that, for he had seen some of that work himself, but what it showed was that men were given more time in those days and had a better selection of materials than they had at the present time. Moreover, men in those days commenced and finished their work, and, consequently, took more pride in it than did men now who had to finish half-a-dozen other people's work in a given time. Then, as to the complaint of the joiner mentioned in the paper against the builder-employer, who rushed about in a carriage in order to look after works, any man of intelligence would scout that as an argument in favour of doing less work. A workman of any common sense would realise that the builder-employer must get about as quickly as possible. Still, the workmen of to-day read what they did not read thirty or forty years ago, and some of them studied statistics, Board of Trade returns, and reports ; and they were beginning to understand that the wealth of the country was accumulating far more quickly than the population, and at a far greater rate than the increase in wages. The wealth of the country had doubled within the last twenty-five years, and the population had doubled in fifty years, and he was quite sure that wages had not doubled in twenty-five years. These were points which had to be reckoned with, and it was this that was in the minds of the class he represented. Mr. Blashill had said that short hours and light work seemed to have been traditional in some offices of the past—and the present, he (the speaker) would add. As to the rise in the cost of brickwork, Mr. Blashill quoted from Mr., now Lord, Brassey's paper before the Institute of Architects in 1878. The fact that work estimated to cost 2*l.* 17s. or 3*l.* 3s. per rod actually cost 5*l.* was all very well on the face of it, but one had to consider the conditions under which the work was done. In all probability the work which had previously been carried out for 2*l.* 10s. was a straightforward job, which made a great deal of difference. A great deal of the increased cost of work was due to a want of management, a want of organisation on the part of the builders' representatives themselves. Another point mentioned in the paper was that the unions did not allow piecework, with the object, it was said, of obtaining the largest amount of pay for the least number of hours worked. That was the result of the inevitable swing of the pendulum. He remembered when one or two men were paid an extra halfpenny or penny an hour to rush the work along, and the policy adopted by the employers in those days to get as much work for as little wages as possible had had its result in this reaction. He would not defend loitering, malingering, or idling, and he said that when employers were prepared to pay a standard rate of wages agreed upon by the trades-unions, every workman ought to be prepared to do a fair day's work. Among every intelligent and sensible body of workmen the loafer or idler was treated with supreme contempt—ignored, boycotted ; and when various speakers said that there was an unwritten law in the trades-unions that only a certain amount of work should be done, he challenged the statement, because nothing of the kind had ever occurred with the knowledge of the unions. If any one could bring a case of the kind before any union he was quite sure the unions would deal with the man or men. [A voice : Are you speaking of work in the shop or on the building ?] .Of work on the building. As to adopting the principle adopted by the Chicago plumbers, he strongly objected to it, and he believed the majority of them would object too. That system would encourage the old tendency to scamp work, which, they had practically settled, they would not put their hands to under any consideration. If the Chicago system were instituted here, he was convinced it would militate against the best interests of the employers and the public. As to the sub-division of labour and the disputes about the demarcation of trades, he said (and he had often got into trouble for saying it, though that did not matter) it was not the business of the unions to decide what was this man's work and the other man's work. That was his own opinion and not the opinion of the unions. So long as men were working under one set of conditions and in receipt of the same rate of wages, it was the employer's business to decide what man should do this work and what men the other work; and if he were working on a job he would not mind if the builder put a carpenter to lay bricks and a bricklayer to hang the doors, for the builder would soon find out his mistake. He thought that such disputes would in time fritter out, and the time was not far distant. As to strikes and lock-outs, he agreed with Mr. Chatfeild Clarke that the trades-unions and employers should pull together. He had always condemned strikes and lock-outs under any circumstances, and he believed if the unions and the employers could meet oftener, much good would be done. There was good reason why, as mentioned by Mr. Randall, cement, steel, and glass were being sent over here by foreign firms. It was not because the British workman wanted higher wages, because a deputation consisting of ironmasters and employers in the metal industries, went over to Germany and Austria, and found that the workmen were getting higher wages, and were working under better conditions than the men employed in the same industries in this country. As to sub-contracting, he was convinced that if there were any attempt made to reintroduce the practice of sub-letting, so far as labour was concerned, it would lead to considerable difficulties with workmen and their employers. He agreed that the apprenticeship system should be reintroduced as far as possible, and he was convinced that if the masters would meet the unions on the subject it could very soon be satisfactorily settled. It was far better than the present system, which made it possible for young fellows to get on the field with a speculative builder and then endeavour to get on to a contract job and so into the trade. It was asked what advantage it had been to the workman to get increased wages, for the workman of to-day seemed the same, or not so good, as the workman of twenty-five years ago. Let them fairly compare the workman of to-day with the workman of the past, and they would see a great difference in favour of the modern man, and he hoped the men would go on improving in the same way. One speaker had referred to the number of men he saw loitering about on Mondays. No doubt those men ought to have been at work, but who knew but what they had been stopped on Saturday and were out looking for work on the Monday? There was very little of St. Monday now as compared with twenty years ago. Mr. Bartlett had said that the amount of work men did was regulated by what the slowest worker on the job did. That was not his (the speaker's) experience, though it might be so in some cases, and where true it did not reflect on the workmen as a whole ; a few instances ought not to be taken as an indication of a common practice. It had always been the practice when he had been working for the younger men to do more than their share of the work where there were old men, so that the old men might keep up with the work. Much as the workman might be complained of, it must not be forgotten that he was just what the employers—the general public and the architects, the conditions, training, and education—made him, and those who were so ready to slate the workmen were generally those who had done nothing to raise him to the position it was said he ought not to be in. If the employer and workman could come together more frequently and discuss questions at issue, they would get on a great deal better and make more progress.

Mr. W. Woodward said he was amazed at Mr. Taylor's speech. Mr. Taylor had traversed the statement that there was no limitation of output by workmen, and that so astounded him that he must ask : Did Mr. Taylor state positively, as his honest conviction, that there was no unwritten law whatever in reference to the number of bricks a bricklayer should lay per day?

Mr. Taylor : Yes ; I am quite certain of that.

Mr. Woodward, continuing, said he was astounded. He had heard the complaint from more than one builder, and he understood that some of the men, when spoken to on the subject, said :—"Well, you see ; I am not allowed to lay more than about 470 bricks a day, and if I do, it will be made very warm for me and I shall not be allowed to lay bricks to-morrow." Mr. Taylor's remarks were contrary to one's experience. All that was asked for was a fair day's work for a fair day's wage, and what had the increased wealth of the people being out of proportion to increased wages of the workman to do with that? It was all a matter of contract—so much wage for so much work. It was the same with an architect, or any one else. An architect did not grumble at his remuneration because the client was making his thousands and he was only making his tens. If the percentage he was paid was not enough, he told the client so, and could decline to do the work unless he got higher remuneration. As to loitering on the job, he was equally astounded at Mr. Taylor's remarks, for the practice was so common—at all events while trade was brisk ; the men practically said, "You cannot do without

us." Now, however, that trade was waning, the men were being brought to their senses, and would, no doubt, in time do what was expected of them under a contract. In regard to the question of which trade should do certain work, it was a question of considerable importance. A stone template was required to be laid the other day, and the bricklayer was not allowed to lay it, and the mason had to be taken from his work some distance off to come and put the template in its place, and then the bricklayer went on. Mr. Taylor minimised this, but such things were constantly going on, and while they did there would be a want of sympathy with the workman to the detriment of architects, builders, and employers. Take the question of workmen's dwellings. Why was it that they could not be built to give a profit to the man who built? Not the enhanced price of materials, but the organised idleness of the workmen. The facts they had heard that evening about foreign competition ought to bring the men to their senses, for trouble was bound to arise when the trade had left the country and men were idle of necessity. The other day the bricklayers struck on one of his works because a drunken bricklayer was not allowed to come on to the work. Fortunately, he was able to get other bricklayers from the country and the work proceeded; but just think of the facts! An accident to the drunken bricklayer might have cost the builder 150*l.* under the Workmen's Compensation Act. Surely all this ought to engage the attention of all serious-minded men.

The chairman said there were still several other gentlemen who desired to speak, but at that late hour the discussion would have to be adjourned until that day fortnight, March 25.

The meeting then terminated.

Country Meeting at Southampton.

It has been decided, on the invitation of the Hampshire, Dorset, and South Wilts Provincial Committee, to hold the next Country Meeting at Southampton, on May 30 and 31. The first day will be devoted to Papers and Discussions, with a Dinner in the evening; the second day to Excursions to various places of interest in Southampton and its neighbourhood.

ANCIENT BUILDINGS.

AT the Carpenters' Hall on Thursday evening last week, Mr. John Slater delivered a lecture upon "Ancient Buildings." The chair was taken by Mr. C. Bird, the master of the Tilers' and Bricklayers' Company, and the lecture was illustrated by limelight views. Mr. Slater took his hearers along the pathway of time to a very remote period. He said that the ancient inhabitants of the world, after vacating caves, built themselves structures of wood, the roofs being composed of trunks of trees. These structures had later been imitated in stone dwellings, particularly in regard to the roofs, a representation of the trunks being carved in stone. He dealt first with the buildings of the Egyptians, commencing from 3,000 B.C. He remarked that stone was almost exclusively used in this part of the world, and he showed photographs of the pyramids. The Egyptians built for eternity, and their structures which remained created wonder by their solidity and massiveness. He showed a section of the pyramid of Cheops, and explained how the tomb was placed in the centre and the main passage blocked up with stone, so that the body should not be disturbed for 3,000 years. The tomb of Beni Hassan, erected 2,500 B.C., was also illustrated, and he pointed out that this was a prototype of the Greek Doric order. He next referred to the temple of Karnac at Thebes with its 134 columns, and to the temple of Isis, Philæ, which he considered was lighted by means of openings in the top of the walls. In Asia there was a different race of ancients and different materials. There was no building stone at hand and the early structures were made of sun-dried bricks, but notwithstanding this some most important discoveries had been made in recent years, by means of excavations. The discoveries at Ninevah by Sir Henry Layard, Sir William Rawlinson, and others showed that the buildings were composed of different stories placed unsymmetrically and each coloured differently. The palace of Khorsabad was a remarkable structure and must have been ablaze with rich colour, as the people of this time were adept in the manufacture of glazed tiles and used them extensively. On each of the steps leading to the palace there was a figure of a man, exceedingly quaint and mythical. Some remains of beautiful structures in Persia had also been excavated, and the lecturer showed a picture of the ruins of the Palace of Persepolis, with its columns higher than those of the Parthenon. There were as many as from thirty to forty flutings in each column. In conclusion he said that it was quite certain that there were many ancient buildings still buried beneath the dust of the desert, beneath more modern dwellings, or covered by the encroaching sea. Discoveries were still being made, and in Crete, for example, a palace had recently been unearthed, which was of the greatest possible interest. Some ancient buildings had also been discovered in Mashonaland, and over the whole face of Egypt enthusiasts had come upon relics of remote civilisation, and seen that in skill and knowledge of building the ancients were giants in those days.

The chairman moved a vote of thanks to the lecturer, and remarked that the modern builder, unlike the ancient Egyptians, did not build for eternity.

The vote was then carried.

ARCHITECTS' BENEVOLENT SOCIETY.

THE annual general meeting of the subscribers and donors of this Society was held on Wednesday in the rooms of the Royal Institute of British Architects, No. 9, Conduit-street, W., Mr. William Emerson, President, presiding.

The minutes of last meeting having been read and confirmed, the following report of the council was read:—

"The council of the Architects' Benevolent Society, in making their report to the contributors for the year of office 1900-1901, have the satisfaction to state that, notwithstanding the many calls upon private benevolence during the period under review, the income has not only been maintained, but increased. Although the society has suffered severely during the last few years by the death of many of its oldest and most generous supporters, its income, through the careful management of successive councils, has not been permitted to diminish; but, on the other hand, the financial progress has scarcely kept pace with the demands on the charity of the society. Last year it was thought that the society's growing needs might be met by the generous response which an explanation of its aims and position would receive at a public dinner; but, in view of the state of public affairs at the time, the project was deferred to a more favourable opportunity. Still, as a special effort was necessary to enable the council to carry on their philanthropic work without rejecting the claims of deserving applicants for relief, the president, with the honorary secretary, undertook to issue a letter of appeal to the members of the profession in the United Kingdom and Ireland, and such a letter was sent out in June last. In view of the large number—some 5,000 architects—to whom the appeal was made, the result was scarcely as favourable as might have been anticipated, but it was successful in so far that it enabled the council to afford a larger measure of practical help where it was urgently needed than would otherwise have been possible . . . . the amount received, or promised, in new annual subscriptions being 98*l.* 9s. 6d., and in donations 151*l.* 17s., while the total cost of issuing the appeal was 38*l.* 8s. 8d.

In connexion with the appeal the Council wish to express their cordial appreciation of the efforts of Mr. E. Monson, who successfully exercised his influence in securing additional subscriptions and donations.

Suggestions have from time to time been received by the Council to the effect that the Society would be more liberally supported if its existence and objects were more widely known; but the Council fear that any further promulgation of the Society's aims than is at present attempted would place it under a burden of expense without a prospect of adequate return. . . . . The Council, at the suggestion of a subscriber, have had also under consideration the desirability of issuing voting papers to members of the Society, and have arrived at the decision that such a system, instead of advancing the objects of the Society, would be a contravention of By-law 68, which states 'that the names of persons relieved by the Society shall not be published.' . . . .

With reference to the society's income account, the Council desire to draw attention to the fact, notwithstanding that the amount received in subscriptions for the year was 522*l.* 0s. 6d., as compared with 469*l.* 3s. received in 1899, there was a balance at the debit of the account on December 31 of 42*l.* 11s. 11d. It is the first time in the history of the society that such a deficiency has occurred, and it is due to the large number of urgent applications for assistance which were considered and relieved. This bears eloquent testimony to the great need of the society for further support. It is hoped that the deficit may be promptly covered by the acquisition of a sufficient number of new annual subscribers.

The number of applications for relief has been greater than in any previous year, being fifty-five, as compared with forty in 1899. The sum thus distributed was 677*l.* 13s., while 112*l.* 10s. was paid to pensioners, making the total sum expended in relief 790*l.* 3s. Two of the Society's pensioners having died during the year, their places were filled by eligible and deserving applicants.

The Council have to record, with great regret, the decease of two distinguished architects who acted as trustees for the Society—Mr. Charles Barry and Mr. Henry Currey. Both gentlemen had taken a lifelong interest in the Society, were frequently elected members of the Council, and were always helpful in promoting its usefulness. Other and more recent losses were Mr. H. C. Boyes, a member of the Council at the time of his decease, and Mr. D. P. Fordham.

Mr. William Emerson, President of the Royal Institute of British Architects, and Mr. Arthur Cates have been nominated by the Council for election as trustees, to fill the vacancies caused by the death of Mr. Barry and Mr. Currey.

The following gentlemen, being the five senior members, retire by rotation from the Council: Mr. R. St. A. Roumieu, Mr. W. Woodward, Mr. E. B. I'Anson, Mr. E. H. Martineau, and Mr. E. T. Hall. To fill these vacancies and that caused by the death of Mr. Boyes, the council beg to nominate:—Mr. Arthur Green, Mr. E. Monson, Mr. Sydney Smirke, Mr. H. L. Florence, Mr. Graham C. Awdry, Mr. J. T. Christopher, and Mr. G. H. Fellowes-Prynne.

The balance-sheet and income account for the year ended December 31, 1900, audited by Mr. J. T. Christopher and Mr. Henry Hall, are herewith submitted.

It remains for the Council to thank the Royal Institute of British Architects for office and other accommodation, and its officials for help and courtesy in any matter connected with the Society."

The Chairman, in moving the adoption of the report and balance-sheet, said the Society had existed for fifty-one years, and he did not think it said much for the profession (although it was true it was not a very lucrative profession) that their capital account and annual income were not greater. There were 1,611 members of the Institute of Architects, and out of that number there were only 245 who were donors or subscribers to this Society; last year the Society sent out 5,000 letters of appeal to architects, and they only had ninety-one in response. This was the only Society that existed to help unfortunate members of the profession, and during its existence it had not been able to acquire more than 10,000*l.* of capital. Last year Mr. Arthur Cates showed how inadequate were the subscriptions and donations to the Society from the profession generally; at the same time the Society was grateful to those who had helped them. He felt he must echo Mr. Cates' eloquent appeal for more support—not only from members of the profession, but also from the outside public, for in a sense the public benefited by the works of architects, and there were no doubt many who, if their attention were directed to the needs of the Society, might be disposed to help. But, of course, most of the help should come from members of the profession, and if the members of the Institute were to subscribe only one shilling each it would result in double the 42*l.* of debt at the end of last year. It was certainly not for a want of a knowledge of the facts that more help was not afforded by the profession, and it must be in consequence of an utter callousness for the unfortunate members of the profession or of a want of *esprit de corps*. If the number of applicants went on increasing, the funds would be insufficient to deal with the cases. That afternoon the council had dealt with eleven cases, and in one or two of them it was impossible to give more than very small sums; more money was needed if the increase of applicants went on. He really thought that next year some steps should be taken to have a public dinner in order to make the Society better known.

Mr. Macvicar Anderson said he was disappointed at the result of Mr. Cates' appeal, but he did not think an appeal to the public would do much good. Still, he thought they ought to do more to increase the funds of the Society, and he should be glad to give 50*l.* to cancel the debt; and he would be still more pleased to make it 100*l.*, provided nine others,

by the end of the year, would give a similar sum, or about twenty others 50*l.* each, so as to add 1,000*l.* to the capital.

The Chairman said he was sure they would all desire to pass a vote of thanks to Mr. Macvicar Anderson for his generous offer; he hoped that the full sum would be obtained by the end of the year.

Mr. Zeph. King seconded the vote of thanks, which was cordially agreed to.

A vote of thanks to the retiring council having been agreed to, Mr. Anderson moved that the following council for the ensuing year of office be elected: President, the President of the Royal Institute of British Architects; Messrs. T. M. Rickman, R. A. Briggs, Arthur Cates, E. A. Gruning, G. T. Hine, Zeph. King, G. Inskipp, J. T. Wimperis, Arthur Green, E. Monson, Sydney Smirke, H. L. Florence, Graham C. Awdry, J. T. Christopher, and G. H. Fellowes Prynne.

This having been agreed to, Mr. W. Hilton Nash, hon. treasurer, moved that Mr. William Emerson and Mr. Arthur Cates be elected trustees. He added that Mr. Charles Morrison, an hon. Fellow of the Institute, had just made a donation of 100*l.* to the funds of the Society, for which they were very much obliged.

The motion was seconded by Mr. Percivall Currey, hon. sec., and agreed to.

Votes of thanks were then passed to the Hon. Treasurer and Hon. Secretary, and those gentlemen were also re-elected for the ensuing year.

Messrs. J. T. Christopher and Henry Hall were thanked for their services as auditors during the past year, and were also re-elected.

On the motion of Mr. H. L. Florence, seconded by Mr. King, a vote of thanks was passed to the Institute for the use of the rooms and for other assistance.

A vote of thanks was then accorded to the Chairman, who, in reply, said he would be one of the twenty subscribers of 50*l.* if the other sums could be obtained.

The proceedings then terminated.

ARCHITECTURAL SOCIETIES.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—A lecture was delivered on the 4th inst. before the members of the Leeds and Yorkshire Architectural Society, at the Park-street Rooms, by Mr. Geoffrey Lucas, on the subject of "Logical Building and its Influence on Design." Mr. W. Carby Hall presided. The lecturer declared that the bulk of modern building did not express the deep underlying tendencies of present-day humanity in the same sense that architecture had incorporated such ideas, sympathy, and feelings in the past. Present aims seemed small and commonplace. Of course, good buildings were produced now-a-days, but the great architectural achievements of the lately closed century were almost entirely of a scholarly and archæological order. Architecture was surely one of the great arts. It was, too, a science, and a progressive one. It demanded a thorough union of construction and adornment. Picturesqueness was a side issue. Buildings had been ostentatiously erected with a vast variety of window and adornment. That, however, was illogical. What they would like to say of a building was that it was simple and an honest endeavour to meet the requirements involved. Replicas were too common. Truro Cathedral and the Houses of Parliament were not without their grandeur, but they hardly appeared to be in touch with the age. New Scotland-yard, on the other hand, was a vigorous and simple piece of modern work, well suited to the purposes in view. One of the finest examples of modern logical building was the new Romanist Church of Westminster, which they might regard as marking the keynote of further progress. The complex conditions under which architects had now to work, the lecturer feared, told against advance. The withdrawal of the architect from personal contact with his work also handicapped him in comparison with his fellow-artificers of old. All details had now to be settled beforehand, and the competition system was another force acting adversely upon architecture as a progressive science. On the other hand, there were not a few advantages pertaining to the architects of the present time. They had the aid of photography, and possessed materials that the ancients could not command. Labour, again, was as plentiful as formerly. If they would advance, it must be on logical lines, purifying architecture of its "Billingsgate," and aiming solely at that which appeared true and essential.

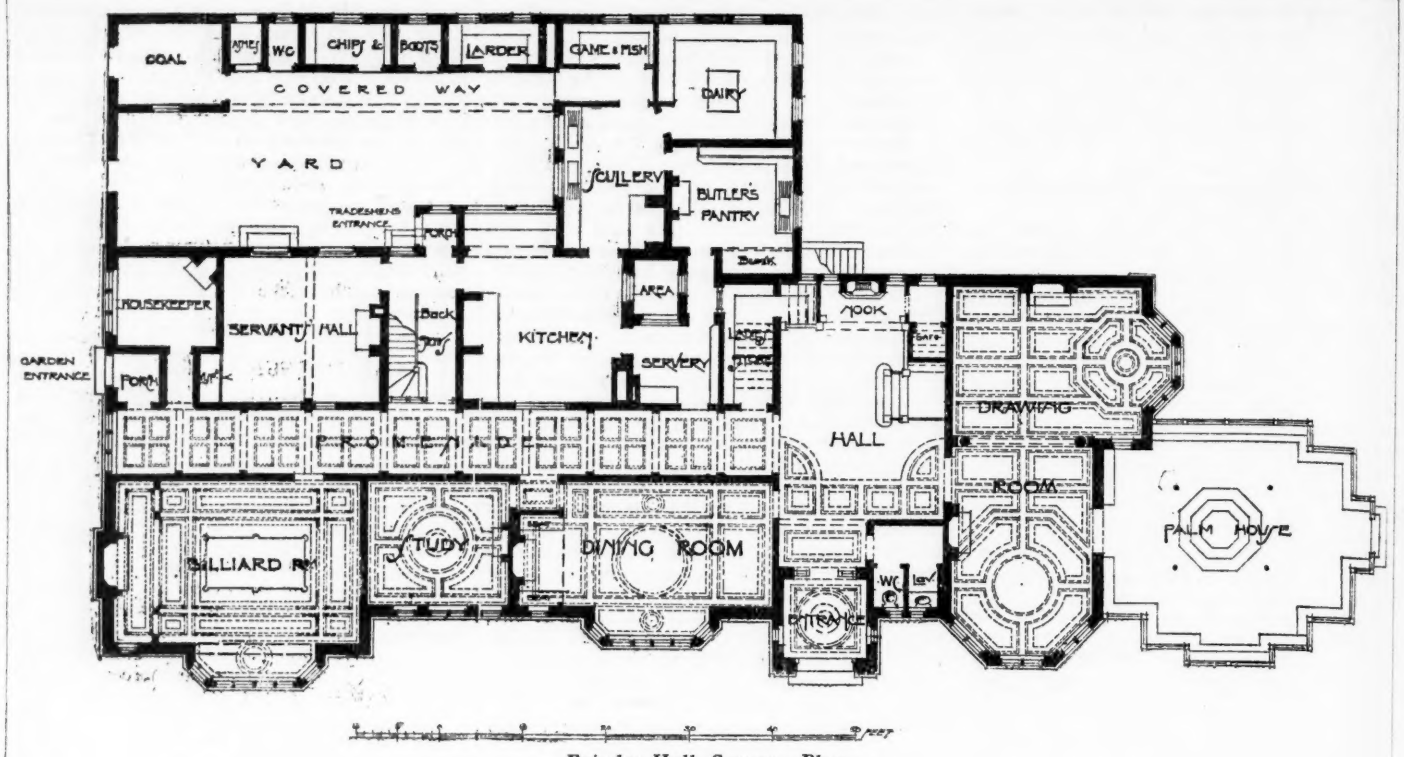
ARCHITECTURAL ASSOCIATION OF IRELAND.—A meeting of the Architectural Association of Ireland was held on the 5th inst. in the Grosvenor Hotel, Westland Row, Dublin: Mr. F. Batchelor, President, in the chair. Mr. John Good, Hon. Sec. of the Master Builders' Association, delivered an address on "Some Aspects of the Labour Question as applied to the Building Industry." He said they had doubtless noticed that for many months past newspapers and magazines had been full of accounts of the rapid progress which characterised the century just ended; but while the sum of that progress was vast, yet as compared with other nations we found that we had not improved as rapidly as they had. Not only so, but we had been outstepped by our rivals, and we were no longer the centre of the great world of commerce. What was the remedy for all this, where was the deficiency? We must educate more thoroughly and more efficiently the mechanic who produced the work, as what the public wanted was a good article produced at the cheapest rate, and the nation that met these conditions best would get the trade. The building industry in Dublin was a large one, comprising upwards of 7,000 hands. It was generally recruited from apprentices, indentured and unindentured, for improvers. The indentured apprentice system—a very ancient one—had been found to yield the best results, although it was capable of immense improvement, both in instruction, inspection, and examination. The conditions of apprenticeship varied considerably in the different trades. In the carpenters and joiners' trade the apprentices were principally bound to the employers, and there was no limit to numbers. However, the percentage of apprentices and improvers here was too small, being 22·8 per cent., instead of 33·33. In the second largest skilled branch of the building industry—the stone and bricklayers—the apprentices must be the sons of a member of the trade; but under some circumstances the rule was relaxed on the payment of a 30*l.* fee. One would scarcely have thought that this hereditary or "caste" system could exist in these enlightened days. There were only 3·2 per cent. of apprentices in this trade, and 1 per cent. of improvers—less than one apprentice and improver to every twenty-four men, instead of one to three or 33·33 per cent.—the necessary number to keep the trade in a healthy and efficient state. In the plastering trade, where the "caste" system in regard to apprentices also prevailed, and no improvers were allowed, there were 25 per cent. of apprentices, or 8·33 per cent. below the necessary number. In the stonecutting trade, in which, except under extreme circumstances, the "caste" system also prevailed, the percentage of apprentices was 19. In other words, in the entire trade there were 17·75 on an average of apprentices, as against the necessary 33·33 per cent.—an appalling deficiency of 600 being the result. Thus sufficient men were not being trained to fill the gaps in the ranks, tradesmen were coming from other places to fill the positions, and thousands of able, but unskilled, hands were forced to seek a living elsewhere. The speaker, having pointed out the necessity of a sound theoretical training and practical instruction in those trades in which there were no standards at present, said that this work of technical instruction should be in the hands of a public or Government department, and he trusted the present system would soon be amended through the exertions of the new Department of Technical Instruction, for which they owed a deep debt of gratitude to Mr. Horace Plunkett.—In the course of the discussion which followed, Mr. Beckett said that although Irishmen talked a good deal of republicanism Irish tradesmen were the most conservative people in the world perhaps, and the attempt to confine certain trades to families was doubtless only equalled by the "caste" system in India.

GLASGOW ARCHITECTURAL CRAFTSMEN'S SOCIETY.—The usual meeting of this Society was held on the 8th inst., Mr. Isaac Low, jun., presiding, when papers by Mr. Jas. McKissack and Mr. Jas. Lochhead were read on the subject of "Planning of Tenements for the Labouring Classes." Mr. McKissack confined his remarks to tenements constructed on the "common close" system, with reference to the arrangement of two-roomed and single apartment houses on the most sanitary and economic principles. The lecturer advocated the desirability of providing a separate water-closet to each house, and showed suggested plans of such arrangements. Mr. Lochhead's paper dealt with that type of dwelling to which entrance is gained from a balcony at each flat, with common stair placed either outside or within. In planning on the "balcony" system the following points were to be considered:—The staircase should be placed outside preferably, and no bedrooms should overlook the balcony, the scullery or water-closet being placed adjacent to this. The site would require to be fairly level in order that the level balcony might serve a sufficient stretch of building.

ARCHÆOLOGICAL SOCIETIES.

ROYAL ARCHÆOLOGICAL INSTITUTE.—A general meeting was held on the 6th inst., Sir Henry H. Howorth, President, in the chair. The President submitted to the meeting an address of condolence to his Majesty the King on the death of the late Queen, and of congratulations on his Majesty's accession to the Throne, which was approved.—Mr. C. E. Keyser, F.S.A., described with the aid of lantern slides about 160 examples of sculptured tympana of the Norman doorways of our English churches. There were also exhibited nearly 200 bromide enlargements arranged on the walls and screens round the room. He stated that his object was to take his audience to see as many examples as possible of his subject, and not to enter on a general argument as to the origin of these sculptures or the craftsmen by whom they were executed. He therefore merely gave the name of each example as it appeared on the screen, with a brief explanation of some of the more obscure subjects represented, pointing out two or three groups which had been severally executed in the same workshop. The chief subjects represented were as follows:—Architectural ornament; crosses of various forms, either singly or in groups; trees or foliage, sometimes with animals; the Tree of Life (typifying the Cross) alone or flanked by animals; the Agnus Dei, alone or worshipped by animals; Sagittarius and Leo; St. Michael and the Dragon; St. George at Antioch; the Legend of St. Margaret; Christ with SS. Peter and Paul; the Majesty with Evangelistic symbols; the Majesty borne by angels, typifying the Ascension; the entry into Jerusalem.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—A meeting was held on March 6, Dr. W. de Gray Birch, F.S.A., presiding, when the following exhibits were submitted: Some pewter plates of about the middle of the eighteenth century, having an unusual pattern and bearing the maker's marks (Spackman's) upon them. The coat-of-arms resembles that of Castile, and probably represents the institution or company to which the plates belonged. These were exhibited by Mrs. Collier. Mr. T. S. Bush exhibited a photograph of a curious circular wooden money chest or box, now belonging to St. Peter's Church, Bristol. The box is 6¼ in. in diameter outside, and 5 in. inside, and is 6⅜ in. high to the top of the cover, which is raised or pie shaped. The box is bound with iron, hinged at the back, and has a strap over the cover, with a top plate and ring; the strap is hinged at the front and carried down to bottom band, forming a hasp over the lock plate, which has three keyholes, one on each side of the strap or hasp and one at the bottom smaller than the other two. There is no slit in the top for dropping in coins, and the box was most probably used for keeping money previously collected. The three locks being for the incumbent and the two churchwardens, and the box could not be opened except in the presence of all three. It is said by some people that this curious relic belonged to the Mint at Bristol, which adjoined the church, and existed from 1643 to 1698. The box, however, would seem to belong to the second half of the sixteenth century.—A paper was read by the Rev. H. J. Dukinfield Astley, M.A., hon. editorial secretary, upon "A Ramble Round Thetford," a quaint and fascinating old Norfolk town, or perhaps it should be called "city," for it was once an Episcopal See. An air of unmistakable antiquity seems to pervade the place, as one wanders through the narrow, winding ways and notices the many remains of ancient religious buildings now, alas! demolished, but still bearing evidence in their scattered fragments built up in modern dwellings of the importance of the town in olden times. In the sixteenth century, Thet-



Frimley Hall, Surrey. Plan.

ford possessed twenty churches, besides other religious buildings. Thetford is partly in Norfolk and partly in Suffolk, being situated at the confluence of the little Ouse and the Thet. The Local Authorities of to-day do not appear to possess much regard for the antiquities of their historic town, as in spite of protests, they have recently pulled down the old Guildhall. Thetford has a very ancient history, going far back into the dim and misty past when the devious and winding ways leading down to the riverside were cut through the primeval forest by the old Cuskanian or Iberian hunters of Neolithic days. In later times the powerful and warlike Ic-eni settled there, and when the Romans came and acquired the Ic-enian realm they found the place pleasant to look upon, as it is to-day, and there they built a town, generally supposed to have been that known as Sitomagus, an important station thirty-one miles from Venta Icenorum, now Castor by Norwich, on the direct line of the Ick-nield Way to London—as Antonines Itinerary describes it. The Roman remains as yet discovered at Thetford have been neither numerous nor important, though there is little doubt as to the identification of the site of the Roman town. The tradition of many an ancient battle fought between the Romans, Britons, and Anglians, and afterwards between the Anglians and Danes, still lingers in the rustic mind. The great mound at Thetford, known as the Castle Hill, is said to have been thrown up by the Danes, whose occupation of Thetford was confirmed by Alfred in his treaty with Guthrum, and Thetford became so thoroughly Danish that it is noted as one of those places which never paid Danegeld. It was in the reign of William the Conqueror that Thetford became for a brief period a Bishop's See, and in 1091 the great East Anglian church builder, Hubert de Losinger, succeeded as third bishop. He did not, however, long remain at Thetford, as in 1094 he removed the See to Norwich.—In the discussion which followed the paper, Mr. Gould remarked that the tradition assigning the erection of the Great Mound to the Danes is very probably correct, but these mound and court forts were erected by Saxons, Danes, and Normans, and belong to the ninth, tenth, and eleventh centuries. Mr. Compton, referring to Thetford as the site of Sitomagus, considered that undoubtedly Thetford was the site of a Roman station, but he thought that neither Thetford nor Woolpit occupy the site of Sitomagus, but that it is to be sought somewhere else in the neighbourhood. The chairman considered the paper an admirable illustration of the use to be made of archæological research during a day's outing in the country. Mr. Astley, in replying, mentioned as an undoubted proof of the post-Roman (to say no more) date of the mound and court forts, the fact that the castle-mound at Norwich, which tradition also ascribes to the Danes, stands right on the track of the Roman road from Caistor to Brancaster, as was ascertained during the course of some recent excavations, when the Roman road was discovered running right across the centre of the mound. A plan of Thetford Priory, several early editions of antiquarian works of the seventeenth and eighteenth centuries, and a fine series of drawings of the old halls and manor-houses of Norfolk, by the late Mr. E. P. Willin, illustrated the paper.

Illustrations.

COMPETITION DESIGN FOR ROYAL INFIRMARY, GLASGOW.

THIS design is the joint production of Messrs. Malcolm Stark and Fred Rowntree, of Great College-street, Westminster, and was submitted in the recent limited competition of London, Glasgow, and Edinburgh architects. The plans show accommodation for 647 beds, with all the usual accessories. The estimated cost was 254,000*l.*

FRIMLEY HALL, SURREY.

WE give a view and plan of this residence, which was built in 1895 from the plans and under the superintendence of Mr. Huon A. Matear, architect, of Liverpool; Messrs Hughes & Stirling, of London and Liverpool, being the principal contractors.

The internal fittings, staircase, and panelling were executed by Messrs. Waring, Gillow, & Co., who also carried out the decoration.

The house is built with Bath stone in quoins, mullions, heads, sills, and string courses, filled in with cement, and dashed with Oporto pebbles. The roof is covered with Ruabon tiles. The floors to all the principal bedrooms and entertaining rooms are of oak.

The principal feature in the house is the staircase and hall, which is carried up two floors, and is entirely of oak.

DESIGNS FOR TEXTILES AND WALL PAPERS.

THESE illustrations are reproduced from designs by Mr. C. H. B. Quennell, architect.

Of the textiles, No. 1 is a brocaded tapestry, part in silk and part wool; No. 2, a tapestry wholly in wool. Both are woven by Messrs. Alex. Morton & Co.

Of the wall papers, No. 1 is printed by Messrs. Jeffrey & Co.; No. 2 is a design not yet produced; No. 3 is printed by Messrs. Jeffrey & Co.; and No. 4 by Messrs. Sanderson & Co., of Chiswick.

COMPETITIONS.

STOCKPORT WORKHOUSE INFIRMARY.—At a special meeting of the Board of Guardians of the Stockport Union, held on the 4th inst. at Shaw Heath Workhouse, the award of Mr. Thomas Worthington, F.R.I.B.A., the assessor appointed to adjudge the competitive plans for a workhouse infirmary proposed to be erected at Stepping Hill, was opened. There had been seventeen sets of plans sent in. The competing architects had been informed that the site proposed to be utilised is about 9¾ acres; the number of patients to be provided for about 300—males 150, females and children 150; the buildings to be arranged to allow for extension of accommodation when required up to 500 beds; and a separate block for thirty nurses. The Guardians offered three premiums of 150*l.*, 100*l.*, and 50*l.* respectively for the most suitable plans. The assessor has awarded these premiums as follows:—(1) Messrs. Giles, Gough, & Trollope, 28, Craven-street, Charing Cross, London; (2) Mr. H. Percy Adams, Woburn-place, Russell-square, London; (3) Mr. Charles W. Hardy, Rodney-street, Liverpool. All the plans are to be publicly exhibited before anything further is done in the matter.

ENGINEERING SOCIETIES.

THE INSTITUTION OF CIVIL ENGINEERS.—At the ordinary meeting on Tuesday, March 12, Mr. James Mansergh, President, in the chair, the paper read was "The Æsthetic Treatment of Bridge Structures," by Mr. Joseph Husband, Assoc.M.Inst.C.E. This paper was devoted to the consideration of the æsthetic appearance of bridge structures in general, as resulting from various methods of treatment in design. The opening portion had reference to some fundamental laws of æsthetics which it was desirable to observe in general design, at the same time pointing out the connexion between æsthetic and economic treatment. The effects on æsthetic appearance of the necessity for rapid construction, choice of material, difficulties of site and magnitude of structure were noticed, together with the importance of making allowance for these in criticising completed works. Adverse criticism was shown to be frequently due to comparison with wrong or unsuitable standards, especially in the case of very large structures. The strong connexion between true economy and æsthetics, as evidenced by natural examples, was next mentioned, and the relation of these to artificial structures was considered. General requirements, such as simplicity in design, proper employment of materials, and choice of the most pleasing outline where option existed between two or more economical schemes, were noted, as well as the inadvisa-

bility of attempting to lay down rules for regulating æsthetic design. Some cases existed in which external ornament might be appropriately employed with economy, whilst many others were totally unsuited for such treatment and suffered detraction if it were followed; and again, abuse of ornament led to æsthetic failure. Bridge structures in general were, for convenience of consideration, divided into three distinct classes—those built entirely of masonry, those constructed entirely of metal, and those in which masonry and metal both figured. These broadly corresponded to works of small span, large span, and intermediate span respectively. The strong relation between masonry types and architecture was noticed, and the various features of the masonry bridge were considered in detail. The effect on the general appearance of different modes of treatment as applied to the arch-ring, spandrils, piers, abutments, and parapet, was commented on, and several instances were cited in which the due observance of the primary laws of æsthetics improved the design without militating against economy. Criticism of masonry structures almost invariably reverted to comparison with architectural standards, often an unfair procedure. Several existing structures were referred to in illustration of the points considered. The second class of structures, consisting of bridges constructed entirely of steel or iron, was subdivided into representative types, each one being considered separately. Emphasis was laid on the necessity for employing a totally different standard of comparison in estimating the æsthetic value of such works, adverse criticism being frequently due to the neglect of this requirement. True æsthetic effect in these structures was due in a much greater degree to a correct observance of simple and economical design, and the adoption of the most pleasing outline consistent with other conditions, the use of applied ornament being almost æsthetically impossible and economically harmful. Several examples of cantilever, suspension, and arch bridges were referred to and illustrated, as well as lofty viaducts carried on metal piers. The various features of each as affecting æsthetic appearance were noticed and cases were instanced in which special difficulties in the way of construction and site had prohibited the employment of a pleasing outline, whilst economy in design had still been preserved. The most recent examples of large bridge structures were cited wherever possible in demonstration of the points at issue. In dealing with the large-span arch, distinct varieties of outline were illustrated, and the relative merits of each were discussed from an æsthetic point of view. A short notice was devoted to the use of more or less ornate masonry towers in connexion with the steel arched bridge. In the third class of structures were considered large-span bridges having masonry piers of such magnitude as to exert a considerable effect on their æsthetic appearance, the most successful examples being those from which architectural ornament had been strictly excluded, and in which a simple but massive treatment had been followed in harmony with the dimensions of the superstructure. In this section were also treated the various types of girder bridges of smaller span, many of which, although possessing little claim to æsthetic value, might yet be rendered more pleasing in appearance by careful attention to several salient features in their design. The paper concluded with a brief notice of the employment of cast-iron ornament in bridge structures, examples being quoted in which its adoption might be desirable, and others in which, by militating against economy, the fundamental principles of æsthetics were also violated. Instances of its eminently successful application were mentioned, and illustrations were supplied showing the comparative æsthetic effects of the use of cast-iron and steel in structural work. The paper was accompanied by forty-seven illustrations and an appendix giving the leading particulars of all the important bridges illustrated.

THE INSTITUTION OF JUNIOR ENGINEERS.—The third lecture of the course on "Works Management" was delivered by Mr. A. H. Barker at the Westminster Palace Hotel on March 7, the Chairman, Mr. Percival Marshall, presiding. Further consideration was given to questions relating to the foundry, including lifting appliances, sand-mixing, compressed air, and hydraulic installations, moulding machines, dressing devices, best relative positions of the different parts of the foundry, &c. The general scheme of successful works management was then entered upon, the objects to be kept in view being defined. The duty of the manager was discussed, and the directions in which he was likely to fail were indicated.—The next lecture takes place on Tuesday, March 19. On Saturday, March 9, a large number of the members visited the Southall works of the Brentford Gas Company by the courtesy of the engineer, Mr. J. Husband. They were received and shown over by the superintendent, Mr. W. Bugby, who explained the construction and operation of the carburetted water gas plant, the system of coal gas manufacture by inclined retorts, and the other interesting features of the works. The visit was arranged in connexion with the paper on "Carburetted Water Gas," read before the Institution on March 1 by Mr. Samuel Cutler, jun.

THE LONDON COUNTY COUNCIL.

THE first meeting of the newly-elected London County Council was held on Tuesday at the County Hall, Spring-gardens, Mr. W. H. Dickinson, Chairman of the late Council, presiding at the commencement of the proceedings.

Election of Chairmen. — The following gentlemen were elected for the ensuing year: As Chairman, Mr. A. M. Torrance; as Vice-Chairman, Mr. McDougall; and as Deputy-Chairman, Lieut.-Col. Rotton.

The Water Question.—After the transaction of other business,

Mr. T. M'Kinnon Wood moved:—"That, in view of the decisive verdict of the electors of London in favour of the Council's water policy, a deputation be appointed to urge upon the President of the Local Government Board that the Government should allow the Council's Purchase Bill to pass second reading, and to be referred to a Committee of Parliament."

Mr. Cornwall seconded the motion, which, after discussion, was carried.

The Council adjourned shortly after seven o'clock.

METROPOLITAN ASYLUMS BOARD.

THE fortnightly meeting of this Board was held at the Board's office, Victoria Embankment, on Saturday last, Sir E. Galsworthy presiding.

The Works Committee, reporting with regard to the North-Eastern Hospital, recommended the managers to authorise, as an extra on the contract for the erection of the new laundry, the carrying out of certain works necessary for the completion of the roadway and the construction of a new trolley track between the old and the new buildings, and the paving of the space in front of the new coal store, in accordance with the specifications prepared by Messrs. A. & C. Harston, the architects, at the total sum of 394*l.* The original amount of the contract was stated to have been 8,865*l.*, and the extras previously reported were 761*l.* 10s. The Board sanctioned the outlay recommended.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

AT the meeting of the London County Council on Tuesday the following applications were considered. Those applications to which consent has been given are granted on certain conditions. Names of applicants are given in brackets. Buildings are new erections unless otherwise stated:—

Lines of Frontage.

Greenwich.—The retention of a greenhouse in the garden of No. 11, Kidbrook Park-road, Greenwich, abutting on Hervey-road (Mr. W. Warmington for Mr. E. Edwards).—Consent.

Camberwell, North.—One-story shop-front on part of the forecourt of No. 52, New Church-road, Camberwell (Messrs. N. S. Joseph, Son, & Smithem on behalf of the Four per Cent. Industrial Dwellings Company, Limited).—Consent.

Islington, North.†—The retention of a gas-meter shed in the playground of the Montem-street school, to abut upon Marriott-road, Islington (Mr. T. J. Bailey for the School Board for London).—Consent.

Lewisham. — Six houses on the east side of Brockley-rise, Lewisham, at the corner of Brockley Park (Mr. J. W. Brooker for Mr. J. W. Webb).—Consent.

St. George, Hanover-square.—A variation from the plans approved on February 25, 1890, for the rebuilding of Nos. 327 and 329, Oxford-street, and Nos. 85 and 86, New Bond-street, so far as relates to an alteration in the construction of the shop-front to such premises (Mr. W. J. Almond for Messrs. Hitchings, Limited).—Consent.

Dulwich.—A one-story shop on the forecourt of No. 72, Church-street, Camberwell (Mr. W. Seth Payne for Mr. C. Herman).—Refused.

Dulwich.—A one-story shop on the forecourt of No. 74, Church-street, Camberwell (Mr. W. Seth Payne for Dr. W. Morrish).—Refused.

Dulwich.—One-story shops on the forecourts of Nos. 68 and 70, Church-street, Camberwell (Mr. W. Seth Payne for Mrs. Clarke).—Refused.

Dulwich.—One-story shops on the forecourts of Nos. 76 and 78, Church-street, Camberwell (Mr. W. Seth Payne for Mr. W. Adams Murphy).—Refused.

Hammersmith.—A detached one-story shop on part of the forecourt of No. 228, Uxbridge-road, Shepherd's Bush (Messrs. Holcombe, Betts, & West for Mr. J. Vellenzer).—Refused.

Hampstead.—Buildings on the south side of the portion of West End-lane between West End Green and Honeybourne-road, and on the east side of the portion of West End-lane between West End Green and Fawley-road (Messrs. Boehmer & Gibbs for Mrs. E. J. Cave).—Refused.

Hampstead.—A building, 16 ft. high, on the east side of West End-lane, to abut upon Fawley-road (Messrs. Saltwell, Tryon, & Saltwell for Mr. J. Fryer).—Refused.

Hampstead.—Shops on the east side of West End-lane, Hampstead (Messrs. Saltwell, Tryon & Saltwell for Mr. J. Fryer).—Refused.

Lewisham.—A church on the east side of Trewsbury-road, Sydenham (Mr. G. H. Fellowes-Prynne for the Vicar and Churchwardens of Christ Church, Lower Sydenham).—Refused.

Norwood.—Five blocks of residential flats, and a house with a shop on the ground floor, on the east side of Knight's-hill-road, West Norwood, at the corner of Rothschild-street (Mr. H. Bushell for Mr. P. Stock).—Refused.

Paddington, North.—A parish hall with a projecting porch, on the east side of Macroom-road, St. Peter's Park, Paddington (Mr. J. S. Alder for Rev. W. P. Legg).—Refused.

Projections.

Islington, East.—That permission be given to Mr. J. Davison to retain a projection (an illuminated sign) at the Queen's Arms public-house, Queensland-road, Hornsey-road, Islington, extending beyond the general line of buildings in Albany-place (Mr. W. H. Fisher).—Agreed.

Woolwich.—Bay windows in front of Nos. 9 to 27 (odd numbers only, inclusive), Elderslie-road, Eltham (Mr. G. F. Logsdail for Mr. A. Cameron Corbett, M.P.).—Consent.

Islington, North.—The retention of bay windows in front of Nos. 10, 12, 14, 16, 18, and 20, Heathville-road, Islington (Mr. R. Midworth for Messrs. Wootton and Green).—Consent.

Marylebone, East.—An iron and glass-covered way at the entrance to Bechstein Hall, No. 36, Wigmore-street, St. Marylebone (Mr. T. E. Collcutt on behalf of Mr. E. Bechstein).—Refused.

Width of Way.

Greenwich.†—The erection of a building, to adjoin the convent on the west side of Wellington-grove, Crooms Hill, Blackheath, with a portion of the building and the boundary fence at less than the prescribed distance from the centre of Wellington-grove (Mr. C. E. Mercer and Messrs. F. J. Eedle & Meyers for Reverend Mother of the Ursuline Convent).—Consent.

Hackney, Central.—The erection of a stable on land adjoining No. 47, Bloomfield-street, Dalston, with the boundary fence at less than the prescribed distance from the centre of the street (Messrs. Partridge Brothers for Mr. Yates).—Consent.

Wandsworth.†—The erection of buildings and a boundary fence at Gothic Wharf, Brewhouse-lane, Putney, at less than the prescribed distance from the centre of the street (Mr. S. J. May on behalf of Messrs. Carlo Gatti & Stevenson, Limited).—Consent.

Hampstead.—The erection of blocks of residential flats on the site of Nos. 6 and 7, The Mount, Hampstead, with the forecourt boundary or fence at less than the prescribed distance from the respective centres of The Grove and a public footway leading from The Mount to The Grove (Mr. C. W. Matthews).—Refused.

Width of Way, Lines of Frontage and Projections.

St. George, Hanover-square.—The erection of an iron and glass shelter at the entrance to No. 46 Dover-street, Piccadilly (Mr. J. T. Martin on behalf of Mr. M. W. Carmichael).—Refused.

Hackney, Central.—The erection of an addition to a church on the north side of Pembury-grove, Lower Clapton, at less than the prescribed distance from the centre of the street (Mr. J. W. Dunford on behalf of the trustees of the church).—Refused.

Width of Way and Space at Rear.

Marylebone, West.—A block of buildings, to be inhabited by persons of the working class, on the east side of Ashland-place, St. Marylebone, to abut also upon Paradise-street, at less than the prescribed distance from the centres of those streets, and with

an open space at the rear (Mr. T. H. Watson on behalf of the Portland Industrial Dwellings Company, Limited).—Consent.

Westminster—A building on the south-east side of Moreton-street, Vauxhall Bridge-road, Westminster, at less than the prescribed distance from the respective centres of Dean's-place and Garden-street, with an irregular open space at the rear (Mr. R. S. Ayling for the Brabazon House Company, Limited).—Consent.

Width of Way and Construction.

Holborn.—A play-shed at the school in Roseberry-avenue, Holborn, at less than the prescribed distance from the centre of Poole's-buildings (Mr. T. J. Bailey on behalf of the School Board for London).—Consent.

Cubical Extent.

Rotherhithe.—The erection, on the south side of St. Thomas-street, Rotherhithe, at the corner of Great Maze-pond, of a warehouse to exceed in extent 250,000, but not 450,000, cubic feet (Mr. P. Currey on behalf of Messrs. Tebbitt Brothers).—Consent.

Means of Escape from the Top of High Buildings.

Westminster (detached).—Means of escape in case of fire on the eighth and ninth stories of a block of buildings known as Park Mansions, on the south side of High-road, Knightsbridge, between Brompton-road and Knightsbridge Green, for the persons dwelling or employed therein (Mr. G. D. Martin for Messrs. A. Kellett & Sons, Limited).—Consent.

Line of Frontage and Construction.

Deptford.—A covered way at the rear of No. 100, Breakspears-road, St. John's, Deptford, to abut upon Glensdale-road (Mr. W. T. Barlow for Mr. C. E. Combe).—Refused.

Formation of Streets.

Lewisham.—That an order be issued to Messrs. D. & R. Kennard, refusing to sanction the formation or laying out of a street for carriage traffic out of the east side of Eliot Park, Blackheath.—Agreed.

Peckham.—That an order be issued to Mr. J. E. Lamerton, refusing to sanction the formation or laying out of a street for carriage traffic, to lead out of the west side of Honor Oak-rise, Forest Hill-road, Camberwell, and the widening in connexion therewith of a portion of Honor Oak-rise.—Agreed.

Wandsworth.—That an order be issued to Mr. H. Vulliamy, refusing to sanction the formation or laying out of two streets for carriage traffic, to lead out of Franchecourt-road, Garratt Green, Wandsworth (for Mr. T. Hailstone and Mr. A. E. Elmes).—Agreed.

The recommendations marked † are contrary to the view of the Local Authorities.

BOOKS RECEIVED.

THE COMPANIES ACT, 1900. By Fairbairn and Wingfield. (Abbott, Jones, & Co.)

HOW TO BECOME A MUNICIPAL ENGINEER.—By J. Freebairn Stow. (The St. Bride's Press. 1s.)

Correspondence.

To the Editor of THE BUILDER.

THE VICTORIAN MEMORIAL.

SIR,—It is gratifying to find that you have taken up this important national question, and millions will agree with your deduction that "what we ought to have as a memorial of our late beloved Queen is a great architectural and sculptural monument, for which there should be a competition open to all British artists."

This architectural and sculptured monument should, I contend, have other *raison d'être* for its existence over and above its artistic beauty, and it would not be inopportune to point out why a sculptured monument, pure and simple, would be inadvisable—nay, I venture to say, unsuitable. We have raised such to commemorate disasters and achievements in naval and military warfare, as in the Nelson monument in Trafalgar Square and the Duke of York's Column, not to mention others, all useless enough and not beautiful; while for sculptured effigies nearer the eye the climatic conditions and our coal-consuming custom soon render them objects of positive disfigurement, entailing a constant outlay in cleaning, by which process they must lose any of the artistic qualities they may have originally had.

To raise a work on a colossal scale which should be unaffected by such conditions we should require a site from which the work could be seen from a distance; and then, I fear, such is the art education of the masses, that they would make pilgrimages to the base with field-glasses in order to discern the ornament, if any, on the edge of a garment.

If the provincial towns one and all want a sculptured effigy of the great Queen, by all means let them have it, but London—the city of the world—wants that and something more. The Victorian monument must not be one commemorating war or disaster to ourselves or others, for it was during the Victorian reign that the arts of Peace were enabled to progress, that science and knowledge advanced, that commerce and industry increased, and that the civilising of the whole world to the glory of God advanced more rapidly than in all previous history. It must be a monument of a humanitarian people.

Speaking as one of the orthodox faith, I would not care to do more than draw attention to a far more serious mistake which might be made, in robbing such a monument of a truly national character by investing it with a particular religious phase, even if it be the state religion. We dare not overlook or ignore the fact that the great Queen Victoria ruled over millions of our brother citizens whose affinities have been drawn closer together by the greatness and wisdom of her reign, and by intermarriage of Catholics, Jews, Nonconformists, Quakers and many others whose religious faiths are so varied as to be almost impossible of enumeration, but in whose hearts lives the spirit of true devotion and loyalty, transferred by the unfailing instinct of right to our Most Gracious Majesty the King and his gracious Consort.

I am sure, Sir, if the matter were placed fairly and without prejudice before his Majesty he would, with his characteristic judgment, consider the matter, and do that which would meet with the sympathy and approval of all. There is no hurry, for in this instance the old proverb holds good "the more haste the less speed." GEO. C. HAITE.

*** Mr. Haité's remark as to the mistake of associating the monument with any special form of religious faith is perfectly true, and forms another reason against the Westminster Abbey chapel scheme.—ED.

THE LONDON WATER QUESTION.

SIR,—I am greatly interested in your article with reference to the London water question.

May I suggest that the best solution of the difficulty would be to fix a meter to every house (as you advocate*), and at the same time to fix a minimum charge, *e.g.*, let every house pay for, say, 25 gallons per head per day, and for so much more (if any) as the meter registers.

Of course, there are drawbacks to every scheme. A tenant will still waste the water if the landlord has to pay, and people *will* water their gardens and indulge more in cold baths during a long spell of hot, dry weather than when it is chilly and wet.

I think the consumers (and not the landlords) must be made to pay directly for the water, and the latter difficulty might be met by doubling the rate chargeable for water consumed above the minimum during the quarter from Midsummer to Michaelmas.

It must be borne in mind that, for the next few years at any rate, the water supply will require husbanding during long droughts.

OSBORN C. HILLS.

* We did not exactly do that. We said it was a point to be considered seriously; that it would save all the expense and irritation inseparable from official supervision; and that if there were insuperable objections to it we had not yet heard of them. We quite recognise that there may be serious difficulties connected with supply by meter.—ED.

PAINTINGS IN ALDERMASTON CHURCH.

SIR,—Your readers may be interested to know that the painting which has been proceeding on the east wall of Aldermaston Church for many months is now approaching completion.

Figures of Our Lord enthroned, the Virgin, and St. John Baptist, with angels, occupy the space immediately below the roof, while on the wall on each side of the east window appear figures of patriarchs, prophets, saints, and martyrs.

The painting is on the wall itself, executed in a wax medium, and with a palette I have restricted with a view to permanence. The old fourteenth-century diaper discovered in the transept by Mr. C. E. Keyser, F.S.A., and myself some years ago has been used as the basis of decoration in the chancel.

It may be valuable to mention that the method of preservation I adopted at the time of discovery has been completely successful. Besides the large fourteenth-century St. Christopher, a portion of a fifteenth-century picture of uncertain subject but fine style, and under an interesting canopy, has not further disintegrated, though the latter work, painted over the fourteenth-century diaper and forming a palimpsest, I found extremely difficult to retain upon the wall.

PHILIP H. NEWMAN, R.B.A.

P.S.—I dare say it needs but recalling to recollection that the transept alluded to contains the exceptionally fine sixteenth-century tomb of the Forders.

ROYAL ARCHÆOLOGICAL INSTITUTE. — The annual meeting this year will be held at Nottingham, from Tuesday, July 23, to Tuesday, July 30.

The Student's Column.

SANITARY FITTINGS AND PLUMBING.

10.—BATHS.

BATHS are made of zinc, copper, sheet-steel, sheet-iron, cast-iron, enamelled fireclay, slate, and marble, and also of wood, either naked or lined with lead, but probably cast-iron is more used in this country than all the other materials put together. It is cheap, durable, impervious, and can be cast with widely-rounded angles and in a variety of forms either for standing exposed or for enclosing in wood.

Exposed baths are generally known in the trade as "Roman," and can now be obtained in almost any material. They are much to be preferred, as a wood enclosure not only renders access to the pipes more difficult, but also provides in many cases a convenient harbour for dirt and vermin. Baths are commonly 5 ft., 5 ft. 6 in., or 6 ft. long, but smaller sizes are made for children and others. The sides may be either "parallel" or "taper," and generally slope inwards towards the bottom; the foot of the bath is frequently vertical, while the head has a long slope. The object of the sloping head and sides is to reduce the quantity of water required, with the further advantage of producing obtuse angles, which can be more easily kept clean than right angles.

Baths are generally fixed by the waste and supply pipes, and if space can be afforded, it is a good plan to place them quite clear of the walls or with only the head or foot near a wall, as such arrangements admit of the floor of the room and the sides of the bath being kept clean. For hospitals, however, movable baths on wheels are largely used.

1. *Sheet-metal Baths.*—Under this head baths of copper, zinc, sheet-steel, and sheet-iron may be considered. Formerly these baths were made to be supported on wood cradling, which was concealed by a wood enclosure, but many are now made with roll edges and sufficiently strong to stand alone.

The old form of copper bath shown in fig. 1 has a flanged rim for fixing in wood casing; the sides weigh 28 ozs. to the superficial foot, the ends (where the curve adds to the strength) 24 ozs., and the bottom 32 ozs. The total weight of copper in a bath of this design 5 ft. 6 in. long is only 65 lbs. There is a copper waste-well in the centre of the bottom, from which a copper pipe 1½ in. or more in diameter leads to the foot of the bath, where a connexion can be made with a lead trap. Sometimes hot and cold inlets are arranged in the sides of the bath with copper pipes attached, as shown in fig. 3. The dimensions of the bath shown in fig. 1 are as follows: Length, 5 ft. 6 in. inside, and 5 ft. 9 in., outside flange; width, 24½ in. at head, and 20 in. at foot, inside flange; depth, 21 in. inside; height from floor, 27 in. Baths 5 ft., 5 ft. 3 in., and 6 ft. long are also made.

The bath shown in fig. 1 has a flat bottom, and the angles are difficult to keep clean. It is better to have the angles well rounded, as in the steel bath (fig. 3). In the best modern baths only three sheets of copper are used (for the head, body, and foot), each being bent or pressed to the necessary curves. These are a great improvement on the old form. In cheaper baths of the form shown in fig. 1 the sides and ends are of sheet-steel or iron, the bottom only being of copper. This reduces the cost about 40 per cent., as copper is, of course, an expensive metal; but a cast-iron bath is better than a composite bath of this kind.

When copper baths are to be fixed without wood enclosure, the flat flange at the top is replaced by a copper bead, or fitted with a hardwood bead, and the bath is japanned outside or finished in some other way. Sometimes a roll-edge of nickel-plated brass is used instead of the copper or hardwood bead.

Copper baths may be finished in a variety of ways. The surface of the copper may be "planished"; this has a good appearance, but is difficult to keep smooth and bright. The cheapest finish is obtained by japanning. A plain finish, either white or (say) pale green, has the best and cleanest appearance. If the japan is polished to give a smoother surface, the cost is slightly increased. The cost also varies according to the number of coats applied. A slightly more expensive finish is obtained by metallic-enamelling, the process being practically the same as japanning, and consisting in the application of

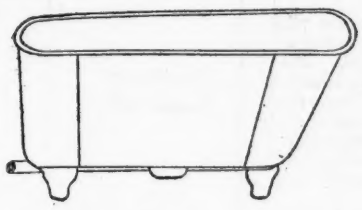


Fig. 1.

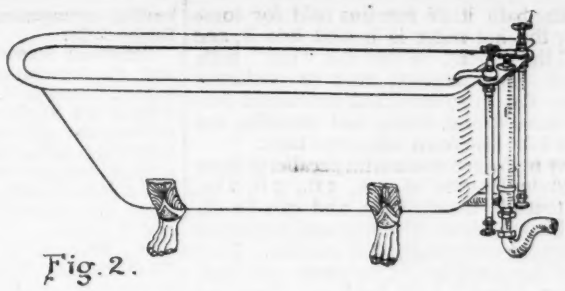


Fig. 2.

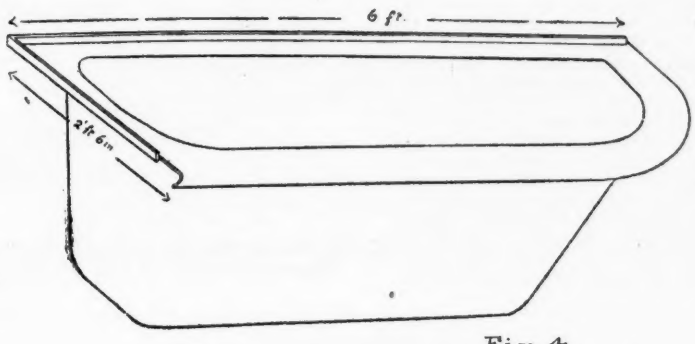


Fig. 4.

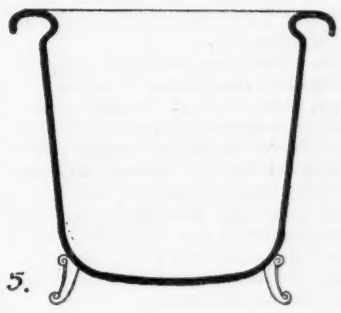


Fig. 5.

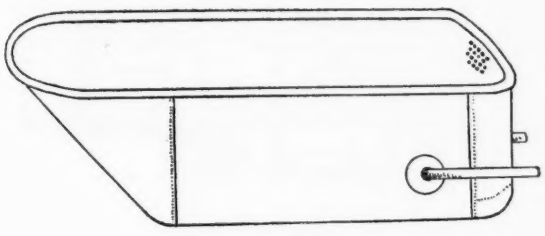


Fig. 3.

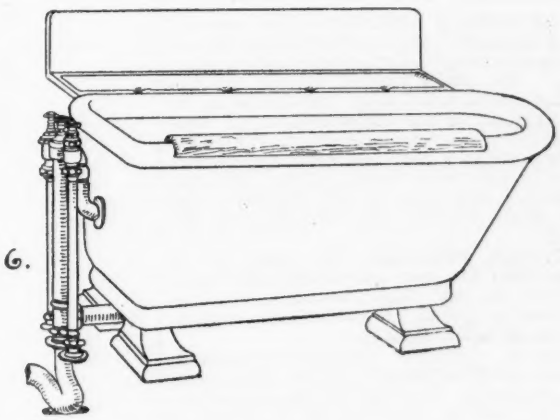


Fig. 6.

Illustrations to Student's Column.

successive coats of a metallic (generally zinc) paint, each of which is burnt on to the metal at the necessary temperature. Three or four qualities of metallic enamel are quoted, the price varying according to the number of the coats and the smoothness of the finish. Before the metallic enamel is applied the copper is generally tinned, as this gives a better result. Tinned copper baths are often planished or highly polished. The appearance of a new bath of this kind is very pleasing, but it is difficult to keep the surface clean and bright. The coat of tin is generally obtained by dipping, but in some cases sheet tin is used and united to the copper by hydraulic pressure.

There can be no doubt that copper is an excellent material for baths. The metal is thin, and does not therefore abstract much heat from the water; it is also durable and can be repeatedly re-enamelled, and when the bath is ultimately worn out it will fetch a good price on account of the intrinsic value of the metal. Perhaps the principal objection to copper baths is that the first cost is so high.

Fig. 2 shows an "Indurated Wood Fibre" bath, lined with highly-polished tinned copper. The top has a French-polished wood capping, and the bath is supported on cast-iron feet.

Cheaper baths of similar design and dimensions to that shown in fig. 1 are made of zinc (plain or japanned), and sheet-iron (galvanised or tinned), with beaded or flanged tops. A sheet-steel bath (Braby's "Empress") is shown in fig. 3. The plates are riveted together, the rivets being flushed inside, and the whole bath is galvanised after manufacture, and afterwards japanned or metallic-enamelled. The angles are well rounded, and as the baths are light and tough and "nest" closely together when packed, they are very suitable for export.

The parallel plate zinc bath (fig. 4) is made of plate zinc $\frac{1}{8}$ in. thick, and has a roll edge on the front and head, and a square raised rim on the back and foot for fitting in the angle of a room. The waste is formed with an ordinary plug and washer with bent union, and an ordinary overflow can be fitted in the end. The surface may be either polished or japanned. Polished zinc is difficult to keep clean, and it must not be forgotten that some waters have a solvent action on the metal, and where this is the case it must be protected by enamelling.

Sheet-metal baths for hospitals are furnished with rubber-tyred wheels, and are fitted with plugs and washers or draw-off cocks, so that the baths can be emptied over floor channels or gullies. Tinned copper is the best material for the purpose, but other metals are also used. The indurated wood fibre baths lined with tinned copper are adapted for hospital use by mounting them on wrought-iron carriages with rubber-tyred wheels. A lip is formed around the inner edge of some hospital baths to prevent splashing while the baths are being wheeled about.

2. *Cast-iron Baths.*—Cast-iron is cheap, impervious, and stiff, and can be moulded in a variety of forms. The objections to the material are that it is somewhat heavy and liable to fracture, and that, in the inferior kinds at any rate, the enamel is rather easily chipped off, thus exposing the metal to the water and air, which cause it to rust. The latter objection loses some of its force if the bath is "vitreous-enamelled," as the process of manufacture ensures a close adhesion of the enamel and iron. For a long time this enamel could only be applied to the inside of the bath, but after many experiments it has been found possible to apply it both inside and outside, and the best cast-iron baths are now made in this way. Cheaper baths are japanned or metallic-enamelled in the manner already described. The vitreous enamel is not only smoother and less pervious, but is not acted upon by inferior soaps or by the acids and salts sometimes used by bathers, which is more than can be said for the ordinary japan or metallic enamel.

The ordinary cast-iron bath is too well known to need complete illustration. It may be encased with woodwork or left exposed. In the former case a simple flanged rim is formed at the top to receive the wood margin. A similar rim is also provided in some Roman baths so that wood margins can be screwed to them, as these are occasionally preferred because the wood is warmer to the touch than an iron roll-edge. The iron roll-edge is, however, more generally adopted. The ordinary roll is an almost exact semicircle, the diameter ranging from about 2 in. to 4 in.; the "Anti-splash" roll (fig. 5) introduced by Messrs. Doulton & Co. is an improvement. Other details will be illustrated in the chapter on bath-wastes and overflows.

3. *Enamelled Fireclay Baths.*—These were first made about fifty years ago, and many have been used. The porcelain enamel is the one great advantage which these baths possessed over those in vogue at the time when the fireclay baths were introduced, but the manufacture of vitreous enamelled cast-iron baths (which have a practically identical surface) appears likely to prevent enamelled fireclay baths being largely used in the future. Fireclay baths are expensive and have undoubtedly certain disadvantages. They are very heavy, a full-sized bath weighing about 5 cwt. or 6 cwt., and the material is so thick and cold, that it abstracts a very large amount of heat from the water. For hospitals, where a "hot" bath is often required for an urgent case, this is a serious disadvan-

tage, as the bath itself remains cold for some time after the hot water is turned into it, and may chill the patient, so that the "hot" bath, instead of being salutary, may be positively injurious. On the other hand, enamelled fireclay baths are strong, clean, and durable, and are easily kept free from infectious taint.

Fireclay baths are made with parallel or taper sides, and in lengths of 4 ft., 5 ft., 5 ft. 6 in., and 6 ft. (outside dimensions), and can be obtained with or without roll edges and enamelled inside only, or both inside and outside. They are sorted into qualities—a common classification being "best," "all but" (or "selected second"), and "second." The bottom of the bath is sometimes fluted with a main longitudinal channel and cross channels leading into it. The bath shown in fig. 6 is a "Cliffe Vale" Roman bath, supported on enamelled fireclay feet, and has a wood rim inserted in the front roll. An enamelled tray, draining into the bath, is fitted at the back between the bath and wall, and forms a convenient receptacle for soap, sponges, brushes, &c.

4. *Other Baths.*—Baths made of slate or marble slabs bolted together have been used, but as they are heavy, cold, difficult to keep clean, and apt to leak, they cannot be recommended. Concrete baths were advertised some years ago, but the material has not proved suitable. Wood has the advantage of warmth, but is unsuitable in other respects. The appearance of lead-lined wood baths is not agreeable, and, as explained in the chapters on sinks, the lead forms into ridges under repeated expansion and contraction, and ultimately cracks.

GENERAL BUILDING NEWS.

BAPTIST CHURCH, LEICESTER.—The memorial stones of the Sunday schools attached to the Robert Hall Memorial Chapel, Narborough-road, were laid recently. The school building will be provided with a lecture-hall and kitchens and classrooms, the whole designed for the accommodation of some 800 scholars. The external elevations of the edifice are to be executed in red sand bricks, and the roof is to be covered with Broseley tiles. The estimated cost of chapel and schools, inclusive of the site, is about 12,000*l.* Mr. W. Brand is the architect.

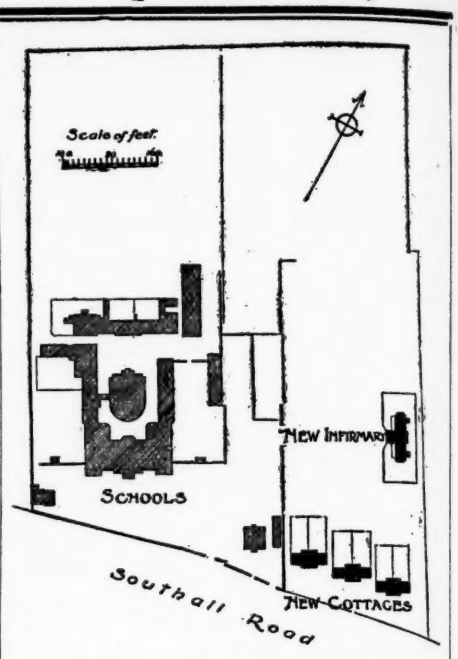
ST. CYPRIAN, BROCKLEY.—The Church of St. Cyprian, which has been built in Adelaide-road, at the foot of the Hilly Fields, Brockley, was consecrated on the 23rd ult. The church was designed by the late Sir Arthur Blomfield.

WESLEYAN CHURCH, ARNOLD, NOTTINGHAMSHIRE.—A new Wesleyan church was opened on the 7th inst. at Arnold. The building, which has been erected at a cost of about 2,500*l.*, is situated in Church-drive on a corner site. It is 52 ft. long and 35 ft. wide, and will seat 300 persons. The choir and organ are located in a gallery behind the rostrum, on each side of which are vestries, one for the use of the choir and one for the minister. The main entrance is from Church-drive by means of a lobby communicating with the main aisles. The building is Gothic in style, and has been built of red bricks with Hollington stone dressings. The internal walls have a wood dado to a height of 4 ft. 6 in., and above this are plastered. The internal woodwork is of red deal, stained and varnished. The school buildings (opened some few months ago) are at the rear of the chapel. The main schoolroom is 36 ft. long and 25 ft. wide. There are two classrooms directly at the end, which open into the school by means of movable partitions, thus giving a room 50 ft. long and 35 ft. wide. Entrances are provided, separate for boys and girls. There is an infants' room, 20 ft. by 14 ft., and also a kitchen. The chapel and school are heated throughout by means of hot water on the low-pressure system, so arranged that the chapel and school can be heated as a whole or separately, as may be desired. The builder was Mr. A. Wayte, of Arnold; and the heating arrangements were carried out by Messrs. Thos. Danks & Co., of Nottingham; the whole work being under the superintendence of Mr. W. H. Higginbottom, architect, of Nottingham.

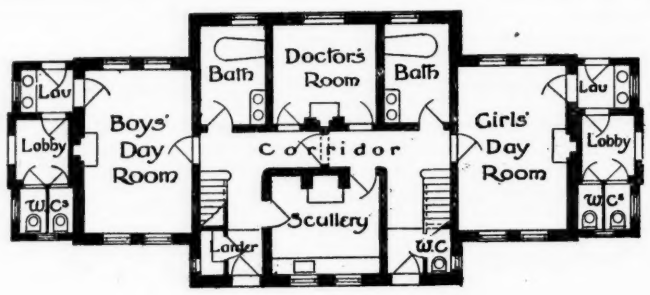
PUBLIC LIBRARY AND READING-ROOM, NOTTINGHAM.—A block of buildings, erected on Carlton-road in the district of Sneinton, Nottingham, was opened on the 25th ult. as a free public library and reading-room. The buildings cover an area of about 850 square yards. There are two large rooms, each 66 ft. by 35 ft., both one story high. One has been furnished and arranged much after the style adopted at the principal reading-room in Sherwood-street; the other is being arranged for the accommodation of women and young people under the age of sixteen. The outer walls are of red pressed brick with Derbyshire stone dressings. The buildings have a main frontage to Carlton-road, with frontages also in St. Matthias-road and Cardiff-street. On the St. Matthias-road site is a dwelling-house for the caretaker. The architect was Mr. W. B. Starr, and the contractor Mr. W. Maule; while the oak fittings have been supplied by Mr. Henry Haines, and the heating arrangements carried out by Messrs. T. Danks & Co.

CATHOLIC SCHOOL, NOTTINGHAM.—On the 7th inst. the foundation-stone of St. Mary's Convent School, Derby-road, Nottingham, was laid. The schools will provide accommodation for 143 infants, 168 boys and girls mixed, and cooking classroom for forty-eight girls, with playgrounds approached by separate entrances from Tunnel-road. The architect is Mr. John Howitt, and the schools are being built under his supervision by Mr. Henry Vickers at a cost of 4,250*l.*

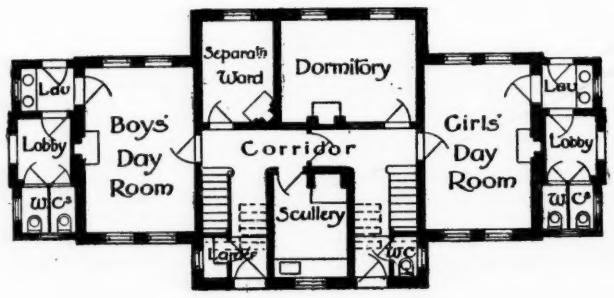
ST. MARYLEBONE SCHOOLS, SOUTHALL: NEW PROBATIONARY WARDS AND INFIRMARY.—The new buildings are erected at the front part of the field on the north side of the school buildings, the three probationary cottages being placed in a line parallel to the public road, and the infirmary adjoining the north boundary. *Probationary Wards.*—With a view of preventing the introduction of infectious diseases into the schools at any time by children taken direct from their homes or elsewhere, it is essential that they should on entry be isolated for a certain period from the other children. This probation allows time for the development of symptoms, and the opportunity of removal to the proper institution before any harm is done. A period of fourteen to twenty-one days is generally considered sufficient probation. It has been found essential, however, to further protect the children during their term of probation from infection by others arriving perhaps within a day or two of their transference to the main school. In view of the great number of "ins and outs" (*i.e.*, cases which are brought in on one day and taken away again by their



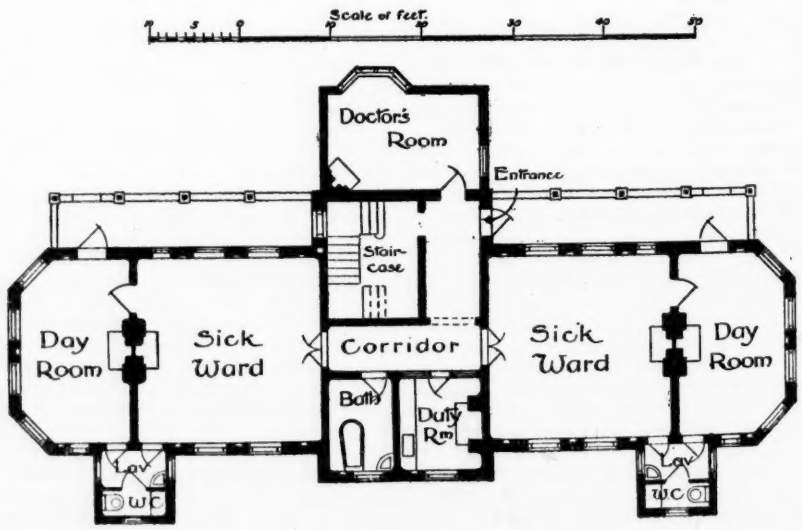
St. Marylebone Schools, Southall: Block Plan Showing Position of New Buildings.



RECEIVING COTTAGE



PROBATIONARY COTTAGE



INFIRMARY.

St. Marylebone Schools, Southall: Ground Plans of New Buildings.

parents or others within a few days), it is obvious that the old system was scarcely really effective. The new buildings are designed to obviate this contingency. On admission children will be taken to the centre cottage or receiving house, where they will be examined by the medical officer in a room provided for the purpose. They will then be bathed, and passed into the adjoining dayrooms, one of which is provided for boys, and the other for girls and infants. Between these dayrooms are separate staircases to the upper floors, and a small kitchen. On the upper floor are two dormitories, respectively for boys and girls, and each to hold six beds, a nurses' bedroom, two separation-rooms—each for one bed—and a small overflow ward for either four boys, or four girls, or infants. After a week's probation in the receiving house the children would be removed to the second cottage for a further week, and then to the third cottage for the last week. If at the end of this time they have shown no signs of disease, they will be ready for transference to the main body of the school. The second and third cottages have similar accommodation to that of the receiving house, but no special room for the medical officer. Each cottage is provided with its own lavatories, bathrooms, and water-closets, and each has its separate airing yard, laid out with gravel, and small flower beds next the fences. *Infirmary.*—The old infirmary built many years since having become inefficient, and by its situation a source of possible danger to the school generally, the new infirmary has been built with better accommodation designed on modern lines, and placed as far as possible from the school buildings. The building is designed to accommodate a maximum of forty beds in no less than eight separate wards. It is simply arranged with two wings (respectively for boys and girls) containing the sick wards, and a centre part with the usual duty-room, bathroom, &c., and staircase. Each wing contains two wards, respectively on the ground and first floors, and two dayrooms. On an emergency each of these dayrooms can be used as an additional sick ward, with a separate entrance from the outside. The wards will accommodate six, and the dayrooms four, beds each. The duty-rooms are fitted with small range, sink, &c., and the bathroom with porcelain enamelled baths and lavatory basins. The ward offices are contained in two sanitary towers, and are cut off from the wards by cross ventilated lobbies. Two nurses' bedrooms and bathroom are provided on the second floor over the centre part of the building. Wide balconies are provided on the south side of the wards. Adjoining the entrance is a medical officers' consulting-room, and above this a sitting-room for nurses. The buildings have been erected from the designs and under the superintendence of Mr. Alfred Saxon Snell, F.R.I.B.A., by Messrs. A. & B. Hanson, of Southall, whose contract for the work amounted to 11,900*l.* Mr. H. G. Rogers acted as clerk of works. The hot and cold water and gas supplies have been carried out by Messrs. J. & F. May, of High Holborn; tiling by Messrs. Carter & Co.; and sanitary apparatus by Messrs. Emanuel & Sons. The quantities and measurements were carried out by Messrs. Northcroft, Son, & Neighbour.

BUILDING TRADE IN ABERDEEN.—The building trade in the city and neighbourhood is still very dull, and the ranks of unemployed masons have been swelled by a large number of men from the monumental granite yards, where work for masons is exceedingly flat, though machine polishing is fairly busy. An improvement on the present slackness in the building and monumental trades is, however, expected in a few weeks. The Town and County Bank have asked 30,000*l.* for three acres of ground at Clayhills, required for the extension of Aberdeen joint passenger station, and the matter has been referred to arbitration. The Town Council have applied for the requisite permission to borrow the sum needed for the proposed new electric station at Dee Village-road and other extensions.

THE IMPERIAL THEATRE.—In the course of next month the Imperial Theatre will be reopened. The house has been reconstructed for Mrs. Langtry, after the plans and designs of Mr. F. T. Verity.

IMBECILE WARDS, BURNLEY WORKHOUSE.—On the 7th inst. the female portion of the new imbecile wards being erected at the Burnley workhouse were formally opened. The wards will, when completed, accommodate about 140 patients. The building wilbe two stories in height. Wards for idiots and epileptics will be on the ground floor, and several rooms are provided for violent and noisy cases. Each class of inmates will be kept separate from the other. The floors will all be fireproof, and each connected with a fire escape to the ground. The architect is Mr. S. Keighley, Burnley.

HOUSING OF THE WORKING CLASSES AT BATH.—A meeting of the Housing of the Working Classes Committee was held at the Guildhall on the 1st inst., when the Mayor (Mr. T. B. Silcock) was re-elected Chairman. It was decided to recommend to the Council the plans submitted by the City Surveyor for thirty-nine houses on the Lampard's Buildings site, making provision for 180 persons. It was reported by the Surveyor that 12,035 loads of refuse had been tipped on the Dolemeads site to raise the land for the new dwellings being erected there.

CRABB MEMORIAL INSTITUTE, TUNBRIDGE WELLS.—The foundation-stone of this building was laid on the 25th ult. The building will be of red brick, with dressings of stone. Messrs. H. H. & E. Cronk, of Tunbridge Wells, are the architects, the builders being Messrs. J. Leney & Son.

PROPOSED EXTENSION OF BRACEBRIDGE LUNATIC ASYLUM, LINCOLNSHIRE.—It is proposed to extend Bracebridge Pauper Lunatic Asylum. Plans are to be prepared by Mr. Albert E. Gough, of London. The extensions will accommodate 200 additional patients. The cost is estimated at over 75,000*l.*

TOWN HALL, CHISWICK.—The new Town Hall for Chiswick, which has been erected on the site of the old vestry offices, at the corner of Sutton-road, was opened on the 28th ult. A part of the old vestry hall has been incorporated in the new building. The work was carried out under the supervision of Mr. Ramsden, the Surveyor. The premises are heated by radiators by Messrs. Russell & Russell. The clerk of works was Mr. George. The cost has been about 18,000*l.*

MISCELLANEOUS.

SOUTH KENSINGTON MUSEUM.—Until further notice the Victoria and Albert Museum will be open to the public till six o'clock on the students' days (Wednesdays, Thursdays, and Fridays), and on Sundays.

ABERDEEN BOROUGH SURVEYOR'S DEPARTMENT.—With a view to lessen the pressure on the Borough Surveyor (Mr. W. Dyack), Aberdeen Town Council has requested its Water Committee to recommend the name of an eminent engineer to guide the Council as to the best source of a new water supply for the city.

HOME ARTS AND INDUSTRIES ASSOCIATION.—The seventeenth annual exhibition of the work done in the classes of the Home Arts and Industries Association will be held from May 16 to 20 in the gallery of the Royal Albert Hall. The exhibition will include specimens of wood-carving, inlay, metal repoussé, embossed leather, baskets, spinning and weaving, lace, toys, and rugs, and of other arts and industries. There will also be exhibits from the Brabazon and Home Art Scheme for Disabled Soldiers and Sailors.

THE LATE MR. H. C. BOYES.—By the will of the late Mr. H. C. Boyes, the architect and surveyor to the Grocers' Company, 100*l.* has been left to the Architects' Benevolent Society, and the same sum to the Charitable Fund of the Surveyors' Club. There were various other charitable bequests. The value of the estate was nearly 62,000*l.*

HYDE PARK.—In the House of Commons on Monday Colonel Legge asked the First Commissioner of Works whether it was proposed to remove the remaining iron railings inside Hyde Park; and whether he would consider the desirability of lighting the roadway between Victoria Gate and the Marble Arch.—Mr. Akers-Douglas: It is proposed ultimately to remove all the iron posts and rail fence in Hyde Park except the portion round the ride. I have not at present sufficient funds to meet the heavy expense of lighting the roadway referred to by my hon. and gallant friend. Seeing that there is a public roadway running parallel to it, and within a few yards, it is not so pressing as other changes.

ASSURANCE AMONG THE INDUSTRIAL CLASSES.—The fifty-second annual report of the Prudential Assurance Company states that in the industrial branch the premiums received during the year were 5,447,697*l.*, being an increase of 278,739*l.* The surplus in this branch is 716,669*l.*, including the sum of 318,983*l.* brought forward from last year. Out of this surplus the board have added 50,000*l.* to the reserve fund, which now stands at 850,000*l.*

HOUSING OF THE WORKING CLASSES.—The Hammersmith Borough Council, on Wednesday evening, decided to adopt Part III. of the Housing of the Working Classes Act, 1890. It was also agreed that a large scheme which the Works Committee have had under consideration for some time past, for the erection of workmen's dwellings on the Council's land near the electric lighting station, Fulham Palace-road, should be proceeded with as soon as possible.

DRIGHLINGTON SEWAGE.—The Local Government Board have decided to issue a provisional order empowering the Drighlington Urban District Council to put in force the Land Clauses Act for the acquisition of land for sewage disposal works. The inquiry was held on January 30 before Mr. R. H. Bicknell, M.Inst.C.E. The District Council's proposal was strongly objected to by the owner, Sir R. Tempest. The scheme as prepared by the Engineer (Mr. John Waugh, C.E., of Bradford) provided for the whole of the drainage of the villages of Drighlington and Adwalton. The sewage, on arrival at the outfall works, is first treated in two large tanks by means of chemical precipitation, and then run on to four bacteria-beds, the effluent from which is treated on five acres of land laid out on the intermittent downward filtration system. The total estimated cost of the scheme is 12,600*l.*

REFUSE DESTRUCTOR, BARRY, GLAMORGANSHIRE.—The refuse destructor which the Barry District Council have built at Barry-road, Cadoxton, was opened on the 26th ult. The destructor is capable of burning 30 tons of house refuse per day. The plans were prepared by Mr. J. C. Pardoe, the Surveyor to the Council, the work having been carried out by Messrs. Lloyd & Tape, of Barry Dock, at a cost of 8,000*l.* The chimney stack, 150 ft. in height, with a lining of fire-brick carried up 125 ft., was built by Mr. J. Prout, of Barry Dock.

BUXTON PAVILION.—A scheme of a very comprehensive character is on foot for altering and extending the buildings in connexion with the well-known Pavilion. The directors of the Buxton Gardens Company have called in the services and advice of Mr. Matcham, architect, of London, who has prepared plans for a main entrance to the gardens, with offices, and beyond that a theatre The latter will occupy a very large area of ground, taking in the first conservatory, aviary, reading-room, and a wide margin of land facing St. John's-road. The existing theatre will be completely remodelled and converted into reading and waiting rooms, smoking-lounges, and, probably, billiard-rooms. The work is of considerable magnitude, and will have to be carried out in sections after the season of 1901.—*Sheffield Independent.*

MEMORIAL TABLET, KING'S COLLEGE, ABERDEEN.—A bronze tablet has been placed in the ante-chapel of King's College, Aberdeen, in memory of the Rev. George Cockburn, the pioneer missionary of the Church of Scotland's station at I-chang. The tablet was designed by Mr. Kelly, the sculptor having been Mr. Watt.

SEWERAGE SCHEME, LISBURN.—Mr. P. C. Cowan, Chief Engineering Inspector to the Local Government Board, recently held an inquiry in the Court-house, Lisburn, into a petition by the Lisburn Urban District Council under the Public Health (Ireland) Acts, 1878 to 1896, for a provisional order empowering the Council to put into force the provisions of the Lands Clauses Acts for taking certain lands compulsorily for the purpose of providing sewerage works. The Council further asked for sanction to a loan of 23,266*l.* 12s. 9d. for the sewerage works. Evidence was given by Mr. W. Tennent Henry, J.P., the engineer for the scheme.

CAPITAL AND LABOUR.

THE BIRMINGHAM BUILDING TRADE.—Building operations have considerably slackened in the district of late, and as a consequence nearly a thousand bricklayers and half that number of carpenters are out of work. It is said that employment has not been so scarce in the trade for many years. The reasons given are over-rapid production, high prices of material, and the war.

ABERDEEN PLASTERERS AND PAINTERS.—The plasterers' strike still continues, with no immediate prospect of a compromise. A difficulty as to the working by-laws in the painting trade has been amicably settled.

LEGAL.

ACTION AGAINST A BUILDING-OWNER.

THE case of Bingham *v.* Turner came before Mr. Justice Channell, sitting without a jury, in the King's Bench Division on the 8th inst., an action by the plaintiff, of 105, Fulham-road, South Kensington, to recover from the defendant, Mr. Everitt Turner, 152*l.* 10s. in respect of certain ranges and marble slips supplied by the plaintiff for the defendant's houses at Brighton.

It appeared that the plaintiff entered into a contract with Mr. J. H. Hackman, a builder of Brighton, under which the latter undertook to build four houses in Dyke-road, Brighton, for the defendant, and the question in dispute was whether the plaintiff was entitled to recover from the defendant (the building-owner) or the builder. The action turned upon a clause in the building contract which gave the architect power to decide whether the building-owner or the builder should be responsible for materials supplied by special artists and tradesmen. The architect certified against the defendant, and his Lordship, in the result, held that the defendant was liable and entered judgment for the plaintiff for the full amount claimed.

WHAT ARE DAMP COURSE SLATES?

AT the Southwark County Court, on Monday, his Honour, Judge Addison, K.C., heard a remitted action in which Messrs. J. Williams & Co., slate merchants, of Dinorwic Wharf, Rotherhithe, sued Mr. John Cooke, a builder and builders' merchant, of Dorking, Surrey, to recover £31 3s. 9d. for slates sold and delivered. The defendant counter-claimed for a similar amount as damages for breach of warranty. Mr. Woodcock was counsel for the plaintiff and Mr. Walsh represented the defendant.

In opening the case, Mr. Woodcock said the plaintiffs were a large firm of slate merchants. On May 10 last one of their travellers called upon the defendant and asked him if he wanted any slates, as he had one or two cheap lines. Defendant said he could do with some damp course slates, and the traveller then and there booked an order for a truckload of damp course slates. The slates were sent off in due course, and after they had arrived at Dorking a letter was received from the defendant declaring that he had ordered only 1,000 of 18 by 9 and 1,000 of 14 by 9, but complaining that they had sent more than double the quantity of "some mineral substance cut into pieces and resembling

slates." The letter continued: "I bought slates, and if you cannot supply the proper Portmadoc don't send me any." It was nonsense for the defendant to expect Portmadoc slates at the price, and a letter was sent to him giving expression to this view. The plaintiffs' traveller had an interview with the defendant, and he then did not complain of the quantity sent or the fact that they were not Portmadoc slates, but that they were thoroughly bad and could not be used for damp course purposes.

Mr. Walsh: I have a pail of water and some of the slates here, and I will show you that they are quite porous and not fit for the purpose for which they were bought.

Mr. Alfred James, the plaintiffs' traveller, said he offered the defendant some damp course slates but there was no remark about the quality as he had only sold this quality all through. There could be no question about Portmadoc not being specified because the price for these would be about 5*l.* more per truck-load. When he interviewed the defendant after the rejection of the slates, he said he would not have cared about the quantity if they had been all right in quality. During the last year he had sold about fifty tons of the same slates for damp course slates.

Cross-examined: At the time of the order he offered the defendant some Portmadoc slates for roofing purposes, but Portmadoc was never mentioned in reference to damp course slates. He was not a builder, and, therefore, he could not say that it was of the utmost importance to use Portmadoc slates for damp courses as they were practically waterproof. The roughest class of slates was used for damp course purposes. He did not offer Portmadoc slates at this price in order to get the defendant's custom.

Mr. J. J. Greenwood said he was a member of the plaintiffs' firm. On receipt of the order from the traveller, he dictated a letter confirming the order, and it was posted to the defendant.

Mr. Woodcock: What is understood in the trade as damp course slates?

Witness: When damp course slates are ordered, it is left to us to send the very worst slates obtainable. They are slates that are not fit for roofing. Continuing, witness said that Portmadoc slates were, at the least, 1*l.* a thousand more than those delivered in this case. The best slates came from Portugal and Penrhyn. Those in question came from the same quarries in Portugal as the best billiard slates. Builders always ordered "damp course slates" and never specified what particular kind of slates they should be.

Cross-examined: Next to the Bangor slates the Portmadoc were least porous of any. French and Portuguese were more porous than Welsh. It was obvious, seeing the object of the damp course, that the least porous slates should be used; but, as a fact, the worst slates obtainable were used for this purpose.

Mr. H. F. Hichisson, a member of a firm of builders' merchants, said he had seen samples of the slates delivered, and had bought exactly similar slates from the plaintiffs for damp course purposes. If he ordered damp-course slates he would expect slates exactly similar to the ones produced. He never specified any particular slates for damp course purposes. They had to be put into a good bed of cement, and that prevented the damp rising.

Cross-examined: Any builder would use a soft and porous slate for a damp-course, except on a big job where a particular slate was specified. The cement kept the damp down, and the object of the slate was to cause it to strike down. A Portmadoc slate soaked in water for twenty-four hours would not get wet through.

Mr. A. H. D. Fraser, secretary to the Valonga Slate and Marble Quarries, said the slates produced were the ordinary quality for damp course slates, and were such as his firm had sold many thousands of for the purpose.

This completed the evidence for the plaintiffs.

The defendant said the deal in question was a trial order. The plaintiffs' traveller offered him several kinds of slates, and eventually he ordered 1,000 18 by 9 and 1,000 14 by 9, at 5*l.* 2*s.* 6*d.* and 4*l.* 7*s.* 6*d.* respectively, and he distinctly understood that they were to be Portmadoc. The traveller said he could do these sizes in Portmadoc cheaper than other slates. When he was advised of the arrival of the slates he inspected them, but was unable to give them a name. They were some kind of a mineral, and he did not believe they were slate at all. He always used the second or third quality Portmadoc for damp courses, because they were non-porous. Those delivered were of no use whatever to him. Some builders used them but he would not, even for cottages. Half of the slates delivered had been pulverised in the truck through shunting, whilst there would not be fifty Portmadoc broken in a truck.

Cross-examined: He had been in the building trade all his life. He had bought third quality Portmadoc, 18 by 9, at 6*l.* per thousand. The slates delivered to him were absolutely worthless to him.

Mr. F. J. Dibble, an architect, of Dorking, said he had examined the slates in question. They were rotten, but might be used by a speculative builder. He would not pass them in any building. Quite as good slates were needed for damp courses as for roofs. He never wished to have anything to do with either Portuguese or French slates.

Cross-examined: He would expect Portmadoc slates to be used for the damp courses of small houses and buildings. He would not expect third quality Portmadoc slates at the prices quoted for the stuff delivered to the defendant.

Mr. George S. Matthews, District Surveyor to the Dorking Urban District Council, said he had seen the slates and found them absolute rubbish. He would not pass such stuff in damp courses even in small cottages.

Mr. Walsh, for the defendant, argued that under Section 13 of the Sale of Goods Act, there was an obligation upon a vendor to sell a thing which corresponded with the description given, and if not, then the buyer could reject. He submitted that he had a further defence under Section 14 in that there was an implied warranty that the goods were fit for the purpose for which they were sold, whereas in this case they were not.

Mr. Woodcock contended that the price which the defendant paid ought to have been an intimation to him of what the slates were. The plaintiffs sold millions of these slates as damp course slates, and therefore this case was of very great importance to them and the trade throughout.

His Honour, in giving judgment, said it was quite clear that the bargain between the traveller and Mr. Cooke was that the latter was to have damp course slates, although there was no inquiry made as to where the slates came from, what they were, or anything of the kind. But that raised the most difficult question of all, and that was whether those that were delivered were really slates that could be called damp course slates and were such as could be used for damp courses. If Mr. Matthews was right, then his evidence almost disposed of the matter. He stated that he would not have allowed the defendant to use the slates for damp courses, and the strongest corroboration of that evidence was the by-law of the Council which he produced. After that it was impossible to say that the defendant should accept them for damp course slates, and therefore he was obliged to find judgment for the defendant on the claim. As to the counter-claim he could not see how the defendant was out of pocket, except to the extent of 1*l.* 1*s.* 3*d.* which he had paid for carriage, and therefore he gave him judgment on that for 1*l.* 1*s.* 3*d.* Judgment was accordingly entered for the defendant on the claim, with costs, and also on the counter-claim for 1*l.* 1*s.* 3*d.*, the latter without costs.

CASE UNDER THE WORKMEN'S COMPENSATION ACT, 1897.

THE case of Henry Fullick *v.* Evans, O'Donnell, & Co., Limited, came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Collins and Romer on the 12th inst. on defendants' appeal from award of the County Court Judge of Westminster under the Workmen's Compensation Act, 1897.

Mr. Ruegg, K.C. (with him Mr. McIntyre) said this was the masters' appeal involving only a short question as to the meaning of "engineering work" under the Workmen's Compensation Act. The action was originally brought by the applicant against the defendants, his employers, in the Westminster County Court under the Employers' Liability Act, alleging that he was injured in consequence of falling from a ladder on which he was standing. After hearing the evidence, the County Court Judge came to the conclusion that it was not the defendants' ladder at all, but that it belonged to the railway company on whose land it was standing at the time of the accident. He held, therefore, that the applicant could not recover against the defendants on that ground under that Act. The applicant then applied to the County Court Judge to have compensation awarded to him under the Workmen's Compensation Act. The County Court Judge then thought that the employment might come under the definition of "engineering work" within the meaning of that Act, and upon that footing he awarded the workman compensation. The defendants were the contractors for railway signal-boxes, and at the time when the accident occurred they were putting up a signal-box for a railway company, composed partly of brick and partly of wood, and having inside levers. The injured workman was a labourer, who was making holes at the bottom of the signal-box through which the signal lines ran, and it was on his behalf contended that he was entitled to compensation under the Act on the ground, firstly, that he was at the time of the accident employed "on, in, or about a railway" within the meaning of the Act. The County Court Judge, however, rejected that contention on the ground that the defendants were not the "undertakers" of the railway. Then it was urged on his behalf that the man was employed at the time of the accident on "engineering work" within the meaning of the Act, and that was what the learned County Court Judge held. He held that the defendants were employed in the construction of a railroad, and therefore that they were liable under the Act. The learned counsel contended that the work of constructing a signal-box did not form part of the construction of the "railroad," and therefore that the defendants were not liable.

Their Lordships, without calling upon counsel for the workman, held that the learned County Court Judge had come to a proper decision, and dismissed the appeal with costs.

THE BLUE LIAS LIME PROSECUTION.

ON Wednesday afternoon, at the Westminster Police-court, Mr. Horace Smith resumed the hearing of the Blue Lias prosecution, in which the Blue Lias Lime Burners' Association, of Medway Wharf, Westminster, summoned the Cam Portland Cement Company, Limited, of Meldreth, Royston, Cambridge, under the Merchandise Marks Act, for unlawfully applying with intent to defraud the alleged false trade description of blue lias lime to ordinary ground hydraulic lime. The complainants' case was completed on the last occasion, and was reported in the *Builder* of February 9 last. For the purposes of the case four tons of lime described on the invoice and on the sacks as "blue lias lime" were purchased from the defendants. The lime was subjected to analytical and practical tests, and, it was stated, was found to be lime that had not been made from the Blue Lias formation, a geological formation unknown to Cambridgeshire, and generally running from Dorsetshire and Devonshire in a north-easterly direction to the northern part of Yorkshire.

Mr. Wills, barrister, again appeared for the complainants, and Mr. Horace Avory, K.C., for the defendants.

Mr. Avory, in opening the defence, said he first of all wanted to deal with the precise question which had to be determined in this important case. The summons charged the defendants "that they did unlawfully, and with intent to defraud, apply to certain goods, namely, four tons of ground hydraulic lime, a false trade description as to the place in which the goods were produced, the mode of producing, and the material of which the same were composed, whereby the goods were falsely described as being ground blue lias hydraulic lime." If the question simply were, What is the primary meaning of the expression "blue lias hydraulic lime"? it would be unnecessary to appeal to his worship to decide it, because any person with the aid of a dictionary and a geological map could answer the question. There was no dispute between the parties that the expression "blue lias lime" had its origin in the fact that lime of a hydraulic character, such as was serviceable in the building trade, was first made from the lias stone, or Lias formation, as it was now known amongst geologists. But the question was not what the origin of the term was, but what was the meaning in the trade at the present day, or at the date when the summonses were taken out, of "blue lias hydraulic lime"? His learned friend, for the purposes of his case, relied upon Section 3, Sub-Sections B and D; namely, he said he undertook to prove that the expression was a description or indication, first, as to the place or country in which the goods were made or produced, and secondly, as to the material of which the goods were composed. His friend, in opening the case, said wisely that he was not concerned to dispute that the lime which was sold in this case might be of the same chemical composition and equally serviceable with that sold by his clients. He would be able to satisfy his worship beyond a doubt that so far as the chemical composition and the serviceable nature of the lime sold by the defendants were concerned, it was equal to, and in all respects as good and of the same composition as, the lime sold by those persons associated together for the purpose of that prosecution. It was not necessary to discuss the motive which underlay that prosecution, because those who were complaining were entitled, if they could, to establish a monopoly in this trade. But on the other hand, the defendants were equally entitled to resist that monopoly, and to show that in law it did not exist. He submitted, in the first place, that this question was purely one of fact, to be determined on the evidence, and it was not a question for geologists at all. It was quite impossible to try the case from a geological point of view. On the evidence of the prosecution it was shown that lime made from blue lias varied very considerably in hydraulicity, and he would prove that some lime made from blue lias limestone was not hydraulic at all. Then the question was whether the expression "blue lias lime" meant a hydraulic lime made solely from Blue Lias formation. If that was so, then blue lias lime would mean lime of varying degrees of hydraulicity, and even with no hydraulic quality at all. But that could not be the meaning of blue lias lime, because all the witnesses for the prosecution had stated that blue lias lime was essentially a hydraulic lime of a certain standard of hydraulicity, and they depended upon certain manufacturers in the lias district to produce this. He would ask his worship to find, as a fact, that blue lias lime had no geological significance, but meant merely a slow-setting lime with a certain standard of hydraulicity.

Mr. Henry P. Hart, the manager to the defendant company, said he had been connected with the lime and cement trade eighteen years. He had been manager to the company since its inception—

namely, ten years. Blue lias lime had been manufactured and sold in Cambridgeshire as blue lias lime for fifteen or sixteen years, and the defendant company had made and sold it ever since they had been formed. They had never received any complaint up till the present. The lime was manufactured from the natural deposit, and nothing was added to it. There were other manufacturers in Cambridgeshire who made and sold similar lime. The characteristics of the lime the defendants sold as blue lias were that it was of a hydraulic nature and slow-setting. The accepted meaning of the expression "blue lias lime" was that it was hydraulic. The term had no signification that he was aware of that the lime came from the Lias district as understood by geologists. He knew the lime made from the Lias formation varied very much as to its hydraulicity; some was eminently hydraulic, some slightly hydraulic, whilst some was not hydraulic at all. He had recently visited various places in the blue lias district as shown on the geological map and had taken several samples. He had submitted these to Mr. Dibdin, an analyst, together with a sample of the lime made by his own company and described as "blue lias."

Cross-examined: He had not heard much about the Blue Lias formation until that case. He was not a geologist, and could not say whether there was any blue lias limestone in Cambridgeshire. He called his lime blue lias lime. He knew that the lime coming from other parts of the country and described as "blue lias lime" was sold at 2s. or 3s. a ton more than that which was made in Cambridgeshire. He had never read any book on the composition of materials used in the construction of buildings.

Mr. Wills: Have you ever seen any warnings in the professional journals, such as the *Builder* and the *Architect*, from time to time for some years past warning people against selling lime that was not blue lias lime or made from blue lias limestone as blue lias lime?—Never, until about a year ago.

Did not that call to your attention the fact that it was claimed that blue lias lime could only be made from the limestone found in the Blue Lias formation?—No, it did not.

What do you think the meaning was? I am sure I do not know, except that people were selling lime that was not hydraulic in character. I had been selling our lime for fifteen or sixteen years without question. Continuing, witness said two limes were made in Cambridgeshire, but the blue lias in appearance could not be distinguished from the blue lias of other districts. He attributed the extra price of blue lias lime from other parts of the country to the fact that the rail was more from these parts than from Cambridgeshire. Blue lias lime meant an eminently hydraulic lime. He described his lime on the invoice as "blue lias hydraulic lime," because there were some blue lias limes which were not hydraulic. The Standard Portland Cement Company and the Natural Portland Cement Company had sold Cambridgeshire lime as blue lias lime.

Re-examined: The defendants described themselves on all documents as "manufacturers of blue lias lime (hydraulic)," and the description "blue lias lime" appeared on every bag.

Mr. Wm. Joseph Dibdin said he was a consulting and analytical chemist, and for fifteen years Chief of the Chemical and Analytical Department of the Metropolitan Board of Works and the London County Council. He was well acquainted with the expression "blue lias lime," and in his experience that expression in the trade meant a thoroughly good, sound hydraulic lime. Until this case that term had never indicated that it came from any particular place, or was made from limestone found only in the Lias formation. He had always looked upon the term as a generic phrase indicating the particular quality. He received samples of the defendants' lime, and passed them as blue lias lime. They answered all the essentials in being eminently hydraulic and slow setting. He also received samples of the blue lias limes manufactured by Messrs. Graves & Co. and Messrs. Nelson & Co. Upon analysing the samples he found that Messrs. Graves' contained 10·58 of soluble silica, and 64·19 of lime; Messrs. Nelson's, 11·63 silica, and 59·42 lime, and the defendants', 15·63 silica and 64·97 lime. Taking into account the proportion of the other ingredients in the defendants' lime, he had no hesitation in saying that it was a blue lias lime of excellent quality, and of the three samples the best. He slaked the samples, and found that the defendants' lime slaked very slowly. He had also analysed five samples of lime from what was known as the Lias region, and found that they varied very much in their hydraulic qualities. They contained from 64 to 94 per cent. of lime. The latter contained only 1 per cent. of soluble silica, and he rejected this at once as not being a hydraulic lime. From all his tests and observations he came to the conclusion that not only was the defendants' sample equal to the definition given by the plaintiff's witnesses of a standard sample of blue lias lime, but the tensile strength indicated that it was a much slower setting lime than the other two. On a six days' test as to the tensile strength he found the defendants' broke at 45 lbs.; Graves', 95 lbs.; and Nelson's at 35 lbs. He had always taken the term "blue lias" as a synonym for "hydraulic."

Cross-examined: Blue lias in his experience denoted the character of the material rather than any particular place from which it came. It was very much like Portland cement, which only denoted the character of the material. He had recently examined samples of Portland cement from China. He had written a book with a chapter on the composition of limes, but as the result of this case which had set up many subtle definitions never before heard of, he would rewrite the chapter. He looked upon this case as an attempt to set up an arbitrary standard for a hydraulic lime.

Mr. James Knights said he was a Fellow of the Institute of Chemistry and of the Chemical Society, a member of the Society of Public Analysts, Analytical Chemist to the Corporation of Cambridge, and a director of the defendant company. He had in his long experience examined very many samples of lime and cement. In the building trade blue lias lime signified a lime containing a considerable quantity of silica and alumina, and sufficient to render it hydraulic. The term did not imply that it was made solely from the limestone found in the Liassic formation. Blue lias lime had been made and sold in Cambridgeshire for the past eighteen years. Blue lias lime would be any lime with about 52 to 58 per cent. of lime, 22 to 28 per cent. of silica, and about 10 per cent. of alumina. He tested four samples, including one of the defendants', and found that the defendants' had the greatest tensile strength, and set more slowly than the others.

Cross-examined: Lime made from the blue lias formation had not been so much used in important buildings requiring great strength as the Cambridge blue lias lime. They called their blue lias lime "blue lias (hydraulic)" because it was not known to all users that blue lias lime was hydraulic.

Mr. Horace Smith: Why not call it, then, simply hydraulic?

Witness: That would raise a doubt in the minds of other users.

Re-examined: The term "blue lias" (hydraulic) showed that it was perfectly hydraulic, and not slightly hydraulic, as might be implied if the term "blue lias" were not used.

Mr. Charles Reilly, architect to the Drapers' Company, said blue lias lime simply meant a hydraulic lime, and did not signify that it was made from the stone found in the Liassic formation. He had known that blue lias lime was made from stone found in other districts than those in the Liassic district.

Mr. Chas. S. Peach said he was a Fellow of the Royal Institute of British Architects, and architect to most of the electric light companies and several corporations. He gave similar evidence to the last witness. He considered the Cam Company's blue lias lime the best he had ever come across.

Cross-examined: Blue lias was always qualified in a specification; the district or maker's name was added.

At this point the hearing was adjourned until Saturday.

CASE UNDER THE LONDON BUILDING ACT.

AT North London Messrs. W. J. Bush & Co., Limited, manufacturing chemists, of Artillery-lane, Bishopsgate, were summoned before Mr. Fordham for failing to comply with a notice to set back the external fence of a new building which they have caused to be erected in Sheep-lane, Hackney, to a distance of 20 ft. from the centre of the roadway. Mr. Macmorran, K.C., appeared for the defendants. Mr. Childers, who conducted the case for the London County Council, explained that the London Building Act of 1894 and the Amending Act of 1898 required that where new buildings were erected on the site of old buildings a plan of the old buildings should be certified by the District Surveyor before the new buildings were begun. Unless such plan was certified the buildings were to be treated as entirely new, and no part of them or the external fence could be erected within 20 ft. of the centre of the roadway. In the present instance the defendants were the owners of property on the east side of Sheep-lane, which was a very narrow thoroughfare. A number of old cottages on this land were pulled down, and on July 13 last the builder, Mr. Nightingale, gave notice of the erection of a new factory and stables. On July 25 the Surveyor to the Hackney Vestry called the attention of the London County Council to the fact that the buildings were in course of erection. On August 1 the Council caused a survey to be made, and it was then found that the buildings had been begun. On August 25 Mr. Hamilton, the defendants' architect, submitted to the District Surveyor a plan of the old buildings, and the District Surveyor certified the line of the old fence. The case for the Council was that this plan was too late, and being late the building came within Section 13, Sub-Section 1, of the Building Act. Section 200, Sub-Section 2, fixed the penalty at not less than 40s. or more than 5*l*. Mr. Macmorran, K.C., said that it was a purely technical offence; the plan was late, and the defendants admitted it, but the point for the magistrate to consider was whether it was absolutely necessary for the certified plan to be sent in before the building was begun. Mr. Fordham said that he should find that the plan which had been certified by the District Surveyor was sufficient to comply with the Act, but it was not submitted in time. He should hold that the Act contemplated the production of the plan before any new building was begun. He must therefore convict. He fined the defendants 3*l*. 3s. with 2*l*. 2s. costs, but he would, if asked to do so, state a case for the opinion of the superior Court.—*Times*.

POINT UNDER THE WORKMEN'S COMPENSATION ACT, 1897.

THE case of Simmons *v.* Faulds came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Collins and Romer, on the 13th inst., on the appeal of the defendant from an award of the County Court Judge of Lambeth in an arbitration under the Workmen's Compensation Act, 1897.

It appeared that the plaintiff was a foreman bricklayer, who was injured by an accident while engaged in a building operation for Andrew Faulds, from whom he sought compensation. The evidence of the plaintiff was that he tendered to the defendant for the job in question, giving an estimate of 160*l*., that he started work on that arrangement, that he was to be paid as the work progressed, that he generally drew about 75 per cent. of the work done, that he was not to supply any material, that his tender was for labour and tools, and that he had worked on the job about eight weeks before the accident. The County Court Judge held that a man, although he was a sub-contractor, might be a workman within the meaning of the Act, and he made an award in favour of the plaintiff for a weekly payment of 1*l*. From this award the defendant now appealed on the ground that the plaintiff was a sub-contractor, and therefore not a workman within the meaning of the Act.

The contention raised on behalf of the plaintiff was that he was a workman within the meaning of the Act, and that the question was one of fact for the learned County Court Judge.

The Master of the Rolls, in giving judgment, held that the Act applied to workmen only, and not to contractors, and in this case it was clear the plaintiff was a contractor to supply labour. He therefore thought the appeal should be allowed.

The Lords Justices concurred, and the appeal was accordingly allowed.

Mr. Ruegg, K.C., and Mr. A. Willis appeared for the appellant (defendant), and Mr. Woodcock for the respondent (plaintiff).

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

22,338.—ELECTRICAL SWITCHES: *Evered & Co. and S. Evered.*—For a two-way switch to be rocked with a tumbler lever, a **V**-shaped or **U**-shaped contact-lever is arranged to connect the terminals and is pivoted upon a pin. Upon the tumbler lever slides an insulating sleeve that works in a recess in the base, and passes between the contact-arms, a fly motion being imparted by means of a spring.

22,345.—VITREOUS COLOURS, GLAZES, &c.: *A. E. Peyrusson and E. Peyrusson.*—In order to prevent lead-poisoning the inventors employ compounds of bismuth, to which silicates or a borate of lithia may be added, instead of a leaden compound for the manufacture of enamels, glazes, vitreous colours, and similar materials.

22,353. — SURVEYING INSTRUMENTS, LEVELS, CLINOMETERS, &c.: *P. O. Aubrey.*—The apparatus, being similar to a sextant for the observation of angles and the calculation of distances, has in combination a slide-rule for making the calculations, and a clinometer for vertical angles. In use the angles α and β, subtended by a distant object M, are observed from the ends A and B of a base line, whose length is l. If x equals the distance required from A to M; $\frac{l}{\sin.(\beta-\alpha)} = \frac{x}{\sin.\beta}$ and $x = \frac{l \sin.\beta}{\sin.(\beta-\alpha)}$ A fixed mirror and a movable mirror give accurate readings of the angles α and β, and fine readings of the scale are taken by means of a graduated head and a vernier. A slide-rule at the base of the instrument will solve the equation log. x = log. l + log. sin. β − log. sin. $(\beta - \alpha)$, the scales being respectively graduated for log. sin. β, log. l, log. sin $(\beta - \alpha)$, and log. x. Altitudes can be taken with a sighting device upon the end of the apparatus, and a pendulum clinometer, to which a vernier is attached, swings over a scale at the back the slide-rule will also serve to determine the linear height of the observed object when one has ascertained its distance and its vertical angle.

22,413.—A COWL FOR CHIMNEYS: *A. O. Neville and F. Carpenter.*—Within the pipe of the cowl are disposed a set of inclined baffle-plates which will direct down draughts to openings in the side; dust or dirt is shaken off the baffle-plates by means of a rod that rises up the middle of the cowl and is lifted with the cleaning brush so as to strike against them.

22,431.—WINCHES AND WINDING APPARATUS: *E. O. Puddephatt.*—The winding-drums are driven with belts from pulleys upon the driving-shaft. At the inner end of each of the drums is a bevel wheel in engagement with radial pinions carried by a disc which, under normal conditions, lies upon a brake-

block, the drums and central disc being loosely mounted on a shaft that revolves in eccentrical bearings. Each belt may be tightened so as to drive its corresponding drum. When the belts are loosened the shaft revolves so as to disengage the disc and to effect friction between the disc and a pulley upon the driving-shaft, whereupon the two drums will be driven in one direction for winding purposes, but they will be driven in opposite directions when the disc has been lowered on to the brake-block and one of the belts has been tightened.

22,459.—AN APPLIANCE FOR WINDOWS: *C. M. Ford (executor of C. C. Mallett) and M. H. Mallett.*—Hinged sliding beads or stops (each of which has a handle) are fitted on to the side frames of a glazed "hopper" window so that they can be turned back and admit of the sash being swung into the room for purposes of cleaning it, &c. When the beads are lifted their lugs engage with recesses cut in the frame, and when the beads are caused to slide downwards those projections are forced against stop-faces. When one moves the sash back again into the hopper the hooked supporting rods pivoted on to the frame are turned up out of the way.

22,475.—DOOR LATCHES: *F. Bell and F. S. Bell.*—The latch-bolt displaces and then falls behind a lever that is pivotted on to the striking-plate of a door or some similar latch. For a striking-plate of a latch-lock adapted for right-hand and left-hand doors a screw is inserted through the other end of the lever, and the lever can be displaced with a handle so that the door may be opened from within, the latch-lock not being used. In the case of a two-bolt mortise lock a channel is made which enables the latch-bolt to operate upon the lever.

22,485.—NOZZLES FOR AUTOMATICAL SPRINKLERS FOR THE EXTINCTION OF FIRE: *L. A. Weston.*—A strut, whereof the two parts are secured to one another with a fusible solder, maintains a valve upon its seating. Through the centre of the spreader is passed a screw which carries the upper end of the strut. A staple that locks the two parts of the strut to one another engages underneath a projection upon one of the two parts, and is soldered on to the bottom flange of the other part. At the fusing of the solder, the opening of a spring contributes to force the parts of the strut asunder.

22,511.—CONCRETE CONSTRUCTION FOR BUILDINGS: *G. E. Clare.*—A concrete which contains clinker, coke-breeze, &c., is filled in the wooden frames of floors, walls, roofs, bungalows, and similar structures. For the parts of a building constructed of concrete, plaster, and timber, the concrete is kept in position with fillets nailed on the timbers, and boards or tiles are nailed to the walls. The wooden frames may be laid upon a flat surface and filled in with concrete, the sections serving for bungalows. Fillets nailed outside the frame keep the concrete in its place, and a key for plaster will be afforded by fixing lathing strips of metal on to the woodwork. The invention extends to the building up of hollow walls, roofs, and floors, and to the fixing of concrete slabs between the timbers.

23,549.—MANUFACTURE OF CEMENT: *F. C. Gostling, F. H. Fraser, and R. Booth.*—For drying the slurry and burning it as it is being passed through an inclined rotatory kiln, which is heated with an admixture of air and combustible gas or vapour, a hopper turns the cement in its fall from the discharge outlet into spaces, beneath which are arranged shelves, upon which are reciprocating slides that impel the cement into trucks, the motion of the slides being imparted by levers and cams upon the rotating kiln. The containers into which the burned cement is diverted have their walls made either of a set of tubes arranged like a grid, or of corrugated air-heating boxes, through which air is forced with a fan, its path being lengthened by means of baffle-plates, and so through a pipe to the outlet nozzle.

22,605.—A REGULATOR VALVE FOR WATER-CLOSETS: *H. L. Doulton.*—For regulating the flow from the service-pipe to the flushing-pipe is devised a lift-valve, in whose upper end is fitted a piston within a cylinder that is joined with a time-passage to the service-pipe and to a push-valve with an opening; the working of the push-valve reduces the pressure upon the top of the lift-valve, so that it will rise and effect a flush, after which it becomes slowly closed as water flows through the time-passage; a simultaneous and automatical working will be afforded by attaching the valve-spindle to the working-lever of the closet discharge-valve, a weight upon that lever will serve to close the valve, or the valve may be shut by means of hydraulic pressure upon a piston applied to the lever.

22,616.—SPANNERS: *W. Förster.*—In order that spanners which have fixed jaws may fit on to differently sized nuts their jaws are provided with filling-pieces; the filling-piece is made of plates strengthened with a web and is secured with a screw through an extension of the web. For turning nuts readily which are close together the plates are disposed so as to project sideways.

22,631.—SHAVE-HOOKS FOR PLUMBERS' USE: *W. F. Waylan.*—The shave-hook is rendered applicable for use as a gauge and marker, and as a cutter for marking washers as well, by marking its shank with graduated divisions and making the sliding gauge-piece as long as, or a little longer than, the blade which is pear-shaped. If the workman wants to shave or mark the end of a pipe, he presses the gauge-piece up against the pipe-end and draws the tool towards it or around the pipe; thus the gauge-piece may be employed as a marker upon flat surfaces when the blade touches an edge of the surface, and it will serve for marking cisterns when its blade is held against one side; it is also available for cutting round washers of leather, lead, or other soft substances, and can be used as a pair of compasses.

22,641.—AN APPLIANCE FOR USE WITH SLIDING WINDOWS: *G. Barnes.*—In order that the bottom of the sash may be automatically forced outwards on to the weather-strip as one shuts the window by lifting the bearer, the upper edge of the bearer and the lower edge of the sash are fashioned bevel-wise. See No. 20,796, of 1899, for a specification of the working and holding apparatus of the windows.

22,647.—MECHANISM FOR SLIDING SASHES: *A. H. Fisher.*—For detaching and fastening the cord a yoke or loop at its end has lateral projections that will engage with inlets cut in a bracket in the sash stile. Two hooks upon a cross-shaft enter the yokes so as to liberate them from the sashes. The hooks when either lifted or lowered lock a handle upon the shaft with a pawl set for engagement with a notched disc at the end of the shaft. The beads are hinged that they may be turned back out of the way, and eyes or sockets attached to the sashes fit over fixed pintles.

22,651.—FIREPROOF STAIRCASES: *F. A. Willmore.*—The cast-iron steps of fireproof staircases (so described) have recesses cut in them for treads of oak, teak, or other material. The treads are fastened with screws driven from beneath them, and sheets of some fire-resisting substance, such as asbestos, are inserted between the metal steps and the wooden treads.

22,671.—A FLUSHING APPARATUS: *M. F. Adams.*—The inventor has contrived that the depression of the closet seat shall effect a lifting of a bell, and that the fall of the bell shall cause the flush to start as soon as the seat has been freed again. To the rear end of the seat is pivotted a rod that extends through a tube upwards into the cistern so as to impinge against a lever which is pivotted at its one end, and carries the bell at its other end.

22,680.—A SAFETY APPLIANCE FOR LIFTS: *U. S. Alz and H. S. Nagengast.*—Underneath the cage or car is a frame that holds two pairs of cylinders, of which the pistons are joined to bars that slide between plates respectively; the remoter ends of the cylinders are joined together with pipes and also with an air-compressing pump which derives its action from the motion of the car. Under normal circumstances the cage will descend as a spring air-escape valve in the cage remains unclosed, but its fall can be arrested through the compression of the air in the cylinders by the pistons as the latter are forced inwards by blocks which are mounted upon the bars and slide in inclined guides attached to the sides of the well or shaft.

22,693.—CALLIPER GAUGES: *F. Ullmer.*—Of the two jaws of the gauge one is provided with a pointer that traverses a minutely graduated scale, and the other is set to the required dimension by means of another scale and its pointer; the first-named pointer, which travels over a curved scale, has at its wider end a rounded part which is pivotted, and to a slight extent out of centre, to the jaw, on the handle by which the pointer is moved for adjustment is a sector which gears with a pinion upon the eccentrical spindle; a variation of the arrangement of the jaws is included in the invention.

22,714.—COMPOSITIONS FOR BUILDERS' USE: *C. Straub.*—For the making of a cement, plaster, or mortar, hydrated aluminium, oxide or bauxite, and slaked lime, are mixed with water. To render the compound fire-proof some mica is added to it, whilst for the bauxite may be substituted gneiss, granite, syenite, crumbled schistose rock, or argillaceous shales, through which water has been caused to percolate for the washing out of the free soda or potash. The granite or other component when in a clay-like condition should be heated in order that it may act upon the lime, and there may be added to the materials such acids and salts as will contribute to the formation of insoluble and fixed combinations with alumina and lime.

22,723.—A COMBINED LATCH AND LOCK: *A. Cashin.*—A lock, for doors and gates, is contrived with a bolt which will turn upon a pin in order that it may serve for a lift-latch, and will, moreover, slide and thereby serve for a bolt-lock, the follower acting upon a pivoted lever or directly upon the tail of the bolt. For raising the bolt, the forward end of the lever is set in engagement with a recess cut in the bolt. In the case of a long recess, or of direct action upon the bolt by the follower, one is prevented from turning the handles after the bolt has been locked, but if a shorter recess is used the disengagement of the forward end of the lever (after the locking of the bolt) causes the turning of the handles to be inoperative upon the bolt. A tumbler or levers retain the locked or unlocked bolt in its place.

MEETINGS.

FRIDAY, MARCH 15.

Architectural Association.—Mr. H. B. Measures on "Rowton Houses." 7.30 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. W. C. Tyndale on "Sanitary Appliances." 7 p.m.

Institution of Mechanical Engineers.—Mr. A. N. Connett on "Combined Trolley and Conduit Tramway Systems." 8 p.m.

SATURDAY, MARCH 16.

Architectural Association.—Third Spring Visit, to Stanhope House, Park-lane, W., by permission of the architect, Mr. W. H. Romaine-Walker. 2.30 p.m.

Institution of Junior Engineers.—Anniversary dinner, Westminster Palace Hotel. 6.30 p.m.

Royal Institution.—The Right Hon. Lord Rayleigh on "Sound and Vibration." IV. 3 p.m.

Incorporated Association of Municipal and County Engineers.—Home District Meeting, to be held at Wimbledon.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Sewage and Destructor Works, Ealing. 2.15 p.m.

British Institute of Certified Carpenters.—Visit to the Guildhall, E.C. 3 p.m.

MONDAY, MARCH 18.

Royal Institute of British Architects.—Ninth General Meeting (business and ordinary). (1) Election of candidate for membership. (2) Mr. C. Harrison Townsend on "The Art of Pictorial Mosaic." In addition to lantern illustrations, a collection of specimens and photographs of mosaic-work will be exhibited. 8 p.m.

Society of Arts (Cantor Lectures).—Major Philip Cardew, R.E., on "Electric Railways." II. 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Mr. W. C. Tyndale on "House Drainage." 8 p.m.

Liverpool Architectural Society.—Mr. Neville Hampson on "The Restoration of Ordsall Hall." 6 p.m.

Leeds and Yorkshire Architectural Society.—(1) Mr. Francis Bond, M.A., on "French and English Abbeys." (2) Election of officers and exhibition of Institute drawings. 6.30 p.m.

TUESDAY, MARCH 19.

Institution of Civil Engineers.—Paper to be further discussed:—"The Æsthetic Treatment of Bridge Structures," by Mr. Joseph Husband. 8 p.m.

Institution of Junior Engineers.—Mr. A. H. Barker, Wh. Sc., on "Works Management." IV. 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Professor Henry Robinson on "Water Supply: Sources of Supply and Distribution." 8 p.m.

WEDNESDAY, MARCH 20.

British Archæological Association.—Rev. W. S. Lach-Szyrma, M.A., on "Chaucer as an Illustrator of Mediæval England." 8 p.m.

St. Paul's Ecclesiological Society.—A paper entitled "Notes on the Brasses of Kent. Part II. Ladies and Civilians," will be read by Mr. Mill Stephenson, F.S.A. 7.30 p.m.

Society of Arts.—Mr. Percy T. Macquoid on "Evolution of Form in English Silver Plate." 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection in the District of St. George's, Hanover-square. 2 p.m.

THURSDAY, MARCH 21.

Carpenters' Hall, London Wall.—Professor T. Roger Smith on "Westminster Abbey." 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Professor Henry Robinson on "Sewerage." 8 p.m.

FRIDAY, MARCH 22.

Architectural Association Discussion Section.—Mr. S. L. Crosbie on "An English Cathedral." 7 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. O. L. McDermott on "The Hunslet Railway, and Bridge over the River Aire." 8 p.m.

Institution of Junior Engineers (Westminster Palace Hotel).—Engineering Question Night. 8 p.m.

Institute of Sanitary Engineers (Incorporated).—Examination in Practical Sanitary Science.

Glasgow Architectural Craftsmen's Society.—"Temporary Carpenter Work."—(1) Mr. R. Stuart on "Gabbert Scaffolds and Crane Seats"; (2) Mr. R. Wilson on "Centering"; (3) Mr. W. H. Baxter on "Temporary Stands." 8 p.m.

SATURDAY, MARCH 23.

Institute of Sanitary Engineers (Incorporated).—Examination in Practical Sanitary Science.

Royal Institution.—Right Hon. Lord Rayleigh, M.A., on "Sound and Vibration." V. 3 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at Sewage Works, Sutton. 3 p.m.

Edinburgh Architectural Association.—Visit to the Victoria Cabinet Works, Kirkcaldy.

Dundee Institute of Architecture.—Visit to Baldovan Asylum.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

February 27.—By WYATT & SON (at Chichester).

Chichester, Sussex.—21 and 22, Whyke-lane, f., r. 28*l.*	£425
17 and 18, St. James's-rd., f.	280
11, 12, and 42, Florence-rd., f.	450

By BALCH & BALCH (at Camden Town).

Holloway.—7, 20, 29, 30, 33, 37, 39, and 45, Roden-st., u.t. 60 yrs., g.r. 50*l.* 8s., r. 288*l.* (in lots)	2,665
36, 37, 38, and 41, Poynings-rd., u.t. 70 yrs., g.r. 21*l.* 10s., r. 138*l.*	1,490
Kentish Town.—21, Allcroft-rd., u.t. 62 yrs., g.r. 7*l.*, r. 33*l.*	345

February 28.—By BROWETT & TAYLOR.

Hackney.—62 and 64, Amhurst-rd., u.t. 49½ yrs., g.r. 12s., r. 90*l.*	990
Croydon.—Queen's-rd., The Princess Arms p.-h., f.g.r. 18*l.*, reversion in 62 yrs.	775
Caledonian-rd.—Copenhagen-st., The Golden Lion p.-h., f.g.r. 2*l.*, reversion in 41 yrs.	580
Teddington.—Stanley-rd., Homeville, u.t. 67 yrs., g.r. 8*l.*, r. 30*l.*	200

By CHESTERTON & SONS.

Wapping.—High-st., Hastie's Wharf, f., r. 250*l.*	4,650

By FAREBROTHER, ELLIS, & CO.

Bloomsbury.—30 and 31, Gloucester-st., f., r. 125*l.*	3,390
Old Buckenham Norfolk.—High-rd., two freehold cottages	101

By LINNETT & LANE.

Kentish Town.—42, Falkland-rd., u.t. 62 yrs., g.r. 8*l.*, e.r. 45*l.*	520

Kilburn.—113, Victoria-rd., u.t. 90 yrs., g.r. 7*l.* e.r. 55*l.* £510
Harlesden —37, Casselden-rd., u.t. 90 yrs., g.r. 5*l.* 5s., r. 36*l.* 375
Kensal Rise.—33 to 41 (odd), Purves-rd., u.t. 95½ yrs., g.r. 31*l.* 10s. 1,360

By MANSELL & ROWE.

Highbury.—102, Grosvenor-rd., u.t. 48½ yrs., g.r. 10*l.* 10s., e.r. 80*l.* 580
Norwood.—50, Rommany-rd., u.t. 77 yrs., g.r. 4*l.* 180

By C. C. & T. MOORE.

Whitechapel.—6, 8, 10, and 12, Fieldgate-st., u.t. 88½ yrs., g.r. 60*l.* 3,500
Mile End.—84 to 98 (even), Oxford-st., u.t. 18½ yrs., g.r. 90*l.* 1,025
Forest Gate.—70, Latimer-rd., f., r. 36*l.* 610
Turnham Green.—8, Westbourne-ter., f., r. 30*l.* .. 400
Leytonstone.—92 and 94, Cann Hall-rd., u.t. 83 yrs., g.r. 11*l.*, r. 60*l.* 550
Hackney.—305, Victoria Park-rd., u.t. 43¾ yrs., g.r. 5*l.* 5s., e.r. 38*l.* 415

By NEWBON, EDWARDS, & SHEPHARD.

Stoke Newington.—110, Milton-rd., f., e.r. 42*l.*.. 705
40, Milton-rd., f., r. 26*l.* 395
2, Shakespeare-rd., f. 485
46, Spenser-rd., f., r. 26*l.* 405
City-rd.—16, Hall-st., u.t. 41 yrs., g.r. 7*l.* 10s. .. 900
Caledonian-rd.—No. 181, u.t. 40 yrs., g.r. 25*l.*, r. 81*l.* 475

By PRATT & MARSLAND.

Sydenham.—75 and 77, Newlands-park, u.t. 77¼ yrs., g.r. 20*l.*, e.r. 90*l.* 500
Ilford, Essex.—23, Northbrook-rd., u.t. 992 yrs., g.r. 7*l.* 15s., e.r. 40*l.* 375

By FULLER, MOON, & FULLER (at Croydon).

Croydon.—27 and 31, Alexandra-rd., f., r. 56*l.* .. 1,030
Beddington, Surrey. — Church-lane, Stansfield Cottage, and Dorset Cottage, f. 560
Norwood.—47, Clifford-rd., f. 435

By STEPHENSON & ALEXANDER (at Cardiff).

Cardiff (Glamorgan).—32 and 34, Clive-st., u.t. 83 yrs., g.r. 6*l.* 10s. 600
Dinas Powis (Glamorgan).—The Powis Hotel (unlicensed), u.t. 90 yrs., g.r. 40*l.* 1,300

March 1.—By BRODIE, TIMBS, & Co.

Hampstead.—8, Strathray-gardens, u.t. 75 yrs., g.r. 20*l.* 3,000
Camden Town.—21, Crowndale-rd., u.t. 42 yrs., g.r. 6*l.*, r. 45*l.* 500

By DOLMAN & PEARCE.

Hampstead.—23, Upper Park-rd., u.t. 50 yrs., g.r. 5*l.* 5s. 600
Kentish Town.—26 and 27, St. Leonard's-sq., u.t. 49 yrs., g.r. 10*l.* 10s. 585
Camden Town.—16, Wellington-st., u.t. 10½ yrs., g.r. 5*l.* 5s., r. 36*l.* 185
43, Chalk Farm-rd., u.t. 24¼ yrs., g.r. 8*l.*, r. 60*l.* 290
Battersea.—121 and 123, Church-rd., u.t. 50 yrs., g.r. 4*l.* 10s. 400

March 4.—By MONYPENNY & NEEDES.

Portman-sq..—1, King-st., u.t. 5 yrs., g.r. 100*l.*, r. 170*l.* 180

By RUMBALL & EDWARDS.

Harpenden, Herts.—The Common, Harpenden Hall and 1'a. 2 r. 0 p., f., r. 120*l.* 2,210
Bloomsbury.—30, Doughty-st., u.t. 7¼ yrs., g.r. 24*l.*, r. 65*l.* 160

By HENRY HENDRIKS (at Birmingham).

Edgbaston, Warwick.—Highfield-road, Highfield Gate, u.t. 44 yrs., g.r. 13*l.* 9s. 1,350

By MESSRS. BALLS (at Sible Hedingham)

Sible Hedingham, Essex.—The Brook Farm Building Estate, 62 a., f. (in lots) 1,783

March 5.—By C. H. BROWN.

Westminster.—87, Page-st., u.t. 8¾ yrs., g.r. nil, e.r. 48*l.* 150
Pimlico.—43, Clarendon-st., u.t. 32¾ yrs., g.r. 8*l.*, r. 60*l.* 425
73, Hanover-st., u.t. 23¾ yrs., g.r. 8*l.* 410
Mortlake.—1, Earl-rd., u.t. 74¼ yrs., g.r. 5*l.* 5s., e r. 24*l.* 195
Putney.—44, Schubert-rd. u.t. 83 yrs., g.r. 8*l.* 8s. e.r. 42*l.* 300

By FRANK JOLLY & Co.

Ball's Pond.—15 and 19, King Henry's-walk, f., r. 70*l.* 1,010
Dalston.—48A and 50, Wilton-rd., u.t. 52 yrs., g.r. nil. 380
Mile End.—20 to 23, Bedford-sq., u.t. 28 yrs., g.r. 35*l.*, r. 197*l.* 1,940
Bow.—6, College-st., u t. 42 yrs., g.r. 1*l.* 6s. 6d., r. 30*l.* 425
Kingsland.—36, 38, and 40, Boleyn-rd., f. 990
Clapton.—52, Rushmore-rd., u.t. 75 yrs., g.r. 8*l.* 8s., e.r. 42*l.* 430

By NOTT, CARTWRIGHT, & ETCHES.

Balham.—Boundaries-rd., Cromwell House, u.t. 95 yrs., g.r. 6*l.* 6s., e.r. 36*l.* 375
Pimlico.—90, Lillington-st., u.t. 24½ yrs., g.r. 7*l.*, r. 44*l.* 300

March 6.—By DUNN, SOMAN, & COVERDALE.

Bermondsey.—182, 184, 186, 188, 194, and 196, Jamaica-rd., u.t. 62 yrs., g.r. 103*l.*, r. 411*l.* 4s. 3,400
Poplar.—16 and 17, James-place, c. 250
1A, 2A, and 3A, James-place, u.t. 20 yrs., g.r. 2*l.* 250
Mile End.—25, 27, 33, 35, 37, and 39, St. Dunstan's-rd., u.t. 48 yrs., g.r. 22*l.* 7s. 1,180
Bethnal Green.—1 to 10, Bonwell-st., u.t. 46 yrs., g.r. 50*l.* 2,220

By REYNOLDS & EASON.

Oxford-st.—A building lease for 80 yrs. of Nos. 57 to 62, South Molton-st., area 6,600 ft., let at per annum 970

By DOUGLAS YOUNG & Co.

Balham.—52, 54, 55, 56, 57, and 59, Ramsden-rd., f., r. 198*l.* 3,060
78, 80, 129, 131, and 135, Endlesham-rd., f., r. 217*l.* 2,410
Clapham.—342, South Lambeth-rd., u.t. 38 yrs., g.r. 12*l.*, e.r. 100*l.* 1,100
25, Stockwell Park-rd., f., e.r. 48*l.* 800
Camberwell.—1, 3, 5, and 7, Jardin-st., u.t. 49½ yrs., g.r. 13*l.* 10s. 1,035
121 and 123, Villa-st., u.t. 51 yrs., g.r. 10*l.* 670
61 to 73 (odd), Westmoreland-rd., u.t. 51 yrs., g.r. 54*l.* 2,340
1A, Doctor-st., u.t. 51 yrs., g.r. 6*l.* 260
Brixton. — 23, Brixton Hill, u.t. 46 yrs., g.r. 13*l.* 10s., r. 100*l.* 800

March 7.—By NEWBON, EDWARDS, & SHEPHARD.

Clerkenwell.—20, Clerkenwell-green, u.t. 57 yrs., g.r. 5*l.*, r. 52*l.* £680
Hoxton.—71, Rushton-st., u.t. 32½ yrs., g.r. 4*l.* 10s., r. 36*l.* 275
4 and 5, Wareham-st., u.t. 33½ yrs., g.r. 9*l.*, r. 70*l.* 590
Islington.—1, 2, and 3, Wilton-st., u.t. 25 yrs., g.r. 12*l.* 12s., r. 98*l.* 820
Holloway.—61, Hornsey-rd., u.t. 63 yrs., g.r. 7*l.*, r. 43*l.* 360
Finsbury Pk.—Seven Sisters-rd., Somerset Villa, u.t. 73½ yrs., g.r. 2*l.*, e.r. 85*l.* 900
3 and 4, Alexandra-villas, u.t. 71 yrs., g.r. 17*l.* 10s., r. 145*l.* 1,785
13, Alexandra-villas, u.t. 61 yrs., g.r. 2*l.*, r. 70*l.* 880
Alexandra-villas, i.g.r. 12*l.*, u.t. 61 yrs., g.r. 2*l.* 210

By STIMSON & SONS.

Abbey Wood, Kent.—Harrow Manor Way, a corner enclosure of land, 9 a. 2 r. 29 p., f. 1,100
Southwark.—41, Gladstone-st., u.t. 28 yrs., g.r. 4*l.* 10s., e.r. 45*l.* 340
Walworth.—3 and 5, Alvey-st., f., r. 74*l.* 8s. 770
7, Alvey-st., area 5,500 ft., f., r. 53*l.* 1,000
9, 11, and 13, Alvey-st., area 9,750 ft., f., r. 105*l.* 1,850
Wandsworth-rd.—Heath-rd., &c., i.g.r.'s 93*l.*, u.t. 26¼ yrs., g.r. nil 1,070
24, 26, and 28, Brewery-rd., u.t. 26¼ yrs., g.r. nil 380
7 to 13 (odd), Heath-rd., u.t. 26¼ yrs., g.r. 2*l.*.. 510
Canning Town.—11 to 17 (odd), Hay-st., f. 720
Commercial-rd. East.—107, Brook-st., c., r. 39*l.*.. 380
Peckham.—51, The Gardens, f., r. 55*l.* 710
New Cross.—51, New Cross-rd., u.t. 23 yrs., g.r. 6*l.*, r. 40*l.* 250

By J. A. & W. THARP.

Homerton.—56, 58, and 60, High-st., and 1, Bridge-st., f. 1,050
3 to 13 (odd), Bridge-st., f. 1,535
Hoxton.—1 to 17, Foundry-place, and 1A and 2A, Royal Oak-walk, f., r. 572*l.* 6,400

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks	1 15 0	per 1,000 alongside, in river
Rough Stocks and Grizzles	1 12 0	,, ,, ,,
Smooth Bright Facing Stocks..	2 18 0	,, ,, ,,
Shippers	2 8 0	,, ,, ,,
Flettons.....	1 9 0	,, ,, ,,
Red Wire Cuts ..	1 15 6	,, ,, ,,
Best Fareham Red	3 11 6	,, ,, ,,
Best Red pressed Ruabon Facing.	5 5 0	,, ,, ,,
Best Blue Pressed Staffordshire ..	4 7 0	,, ,, ,,
Do., Bullnose	4 12 0	,, ,, ,,
Best Stourbridge Fire Bricks	4 4 6	,, ,, ,,
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers	13 0 0	,, ,, ,,
Headers	12 0 0	,, ,, ,,
Quoins, Bullnose, and Flats	17 0 0	,, ,, ,,
Double Stretchers	19 0 0	,, ,, ,,
Double Headers..	16 0 0	,, ,, ,,
One Side and two Ends	19 0 0	,, ,, ,,
Two Sides and one End	20 0 0	,, ,, ,,
Splays, Chamfered, Squints	20 0 0	,, ,, ,,
Best Dipped Salt Glazed Stretchers and Headers ..	12 0 0	,, ,, ,,
Quoins, Bullnose, and Flats	14 0 0	,, ,, ,,
Double Stretchers	15 0 0	,, ,, ,,
Double Headers..	14 0 0	,, ,, ,,
One Side and two Ends	15 0 0	,, ,, ,,
Two Sides and one End	15 0 0	,, ,, ,,
plays, Chamfered, Squints	14 0 0	,, ,, ,,
Seconds Quality White and Dipped Salt Glazed	2 0 0	,, less than best

	s. d.	
Thames and Pit Sand	7 6	per yard, delivered.
Thames Ballast	6 3	,, ,,
Best Portland Cement	38 0	per ton ,,
Best Ground Blue Lias Lime..	25 6	,, ,,

NOTE.—The cement and lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 13s. 6d. per yard, delivered
Stourbridge Fire-clay in sacks, 32s. 6d. per ton at rly. dpt.

STONE.

	s. d.	
Ancaster in blocks	2 0	per ft. cube, deld. rly. depôt.
Bath ,, ...	1 7	,, ,,
Farleigh Down Bath ..	1 8	,, ,,
Beer in blocks	1 6½	,, ,,
Grinshill ,, ...	1 10	,, ,,
Brown Portland in blocks	2 2	,, ,,
Darley Dale in blocks..	2 1½	,, ,,
Red Corsehill ,,	2 5	,, ,,
Red Mansfield ,,	2 4½	,, ,,
Hard York in blocks ..	2 10	,, ,,

PRICES CURRENT (*Continued*.

STONE.

	s. d.	
Hard York 6 in. sawn both sides landings, to sizes (under 40 ft. sup.)	2 8	per ft. super. at rly. depôt.
,, ,, 6 in. Rubbed Ditto..	3 0	,, ,,
,, ,, 3 in. sawn both sides slabs (random sizes)	1 3	,, ,,
,, ,, 3 in. self-faced Ditto	0 9½	,, ,,

SLATES.

in. in.	£ s. d.	
20×10 best blue Bangor..	11 5 0	per 1000 of 1200 at rly. dep.
,, best seconds ,,	10 15 0	,, ,,
16×8 best ,,	6 2 6	,, ,,
20×10 best blue Portmadoc	10 18 0	,, ,,
16×8 best blue Portmadoc	6 0 0	,, ,,
20×10 best Eureka unfading green.....	11 2 6	,, ,,
16×8 ,, ,,	6 15 0	,, ,,
20×10 Permanent green	10 0 0	,, ,,
16×8 ,, ,,	5 12 6	,, ,,

TILES.

	s. d.	
Best plain red roofing tiles..	41 6	per 1,000 at rly. depôt.
Hip and valley tiles....	3 7	per doz. ,, ,,
Best Broseley tiles	48 6	per 1,000 ,, ,,
Hip and valley tiles....	4 0	per doz. ,, ,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57 6	per 1,000 ,, ,,
Do. ornamental Do.	60 0	,, ,, ,,
Hip tiles.....	4 0	per doz. ,, ,,
Valley tiles.....	3 9	,, ,, ,,
Best Red or Mottled Staffordshire Do. (Peakes) .	50 9	per 1,000 ,, ,,
Hip tiles	4 1	per doz. ,, ,,
Valley tiles.....	3 8	,, ,, ,,

WOOD.

BUILDING WOOD.—YELLOW.

	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9in. and 11 in.	16 10 0	18 0 0
Deals: best 3 by 9	14 10 0	15 10 0
Battens: best 2½ in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.....	12 10 0	13 10 0
Battens: best 2½ by 6 and 3 by 6 ..	0 10 0	less than 7 in. and 8 in.
Deals: seconds.....	1 0 0	less than best
Battens: seconds.....	0 10 0	,, ,, ,,
	At per load of 50 ft.	
Fir timber: Best middling Danzig or Memel (average specification)	4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Swedish balks.....	2 15 0	3 0 0
Pitch pine timber (35 ft. average)..	4 0 0	4 10 0
JOINERS' WOOD.	At per standard.	
White Sea: First yellow deals, 3 in. by 11 in.....	27 10 0	28 10 0
3 in. by 9 in.	24 0 0	25 0 0
Battens, 2½ in. and 3 in. by 7 in.	20 0 0	21 0 0
Second yellow deals, 3 in. by 11 in.	22 10 0	24 0 0
,, ,, 3 in. by 9 in.	20 0 0	21 0 0
Battens, 2½ in. and 3 in. by 7 in.	16 10 0	18 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	16 10 0	18 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	25 0 0	26 0 0
Do. 3 in. by 9 in.	22 0 0	23 0 0
Battens.....	16 10 0	17 10 0
Second yellow deals, 3 in. by 11 in.....	18 10 0	20 0 0
Do. 3 in. by 9 in.	17 0 0	18 0 0
Battens.....	14 0 0	14 10 0
Third yellow deals, 3 in. by 11 in.....	15 0 0	16 10 0
Do. 3 in. by 9 in.	14 0 0	14 10 0
Battens.....	12 10 0	13 10 0
White Sea and Petersburg:—		
First white deals, 3 in. by 11 in..	15 10 0	16 10 0
,, ,, ,, 3 in. by 9 in. ..	14 0 0	15 0 0
Battens.....	12 10 0	13 10 0
Second white deals 3 in. by 11 in.	14 0 0	15 0 0
,, ,, ,, 3 in. by 9 in.	13 0 0	14 0 0
,, ,, battens	11 0 0	12 0 0
Pitch pine: deals	16 0 0	18 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—		
First, regular sizes	30 0 0	33 0 0
Broads (12 in. and up)	2 0 0	more.
Oddments	22 0 0	24 0 0
Seconds, regular sizes	24 10 0	26 10 0
Yellow Pine Oddments	20 0 0	22 0 0
Kauri Pine—		
Planks, per ft. cube	0 3 6	0 4 6
Danzig and Stettin Oak Logs—		
Large, per ft. cube	0 2 6	0 2 8
Small ,, ,, ...	0 2 4	0 2 7
Wainscot Oak Logs, per ft. cube ..	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 8	0 0 9
in. do. do.	0 0 7	- - -
Dry Mahogany—		
Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch.....	0 0 10	0 1 0
Teak, per load	16 0 0	20 0 0
American Whitewood Planks—		
Per ft. cube.....	0 2 3	0 3 0

JOISTS, GIRDERS, &c.

	In London, or delivered to Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	7 15 0	8 15 0
Compound Girders ,, ,,	9 10 0	10 15 0
Angles, Tees and Channels, ordinary sections	9 7 6	11 7 6
Flitch Plates	9 15 0	10 10 0
Cast Iron Columns and Stanchions, including ordinary patterns	8 5 0	10 0 0

[*See also page 277.*

CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c., Supplied by	Tenders to be delivered
Surveyor's Materials	Downham Market (Norfolk) R.D.C.	H. Wayman, Union Offices, Downham Market	Mar. 19
Road Materials, &c.	Middlesbrough R.D.C.	W. H. Dixon, Surveyor, Kirby-in-Cleveland	do.
House, Baildon, Yorks	.....	R. Calvert, Architect, 4, Forster-square, Bradford	do.
Alterations, &c., to Schools, Thornton	Bradford School Board	T. Garbutt, School Board Offices, Manor-row, Bradford	do.
Additions to Church and Schools, Abersychan	.....	Habershon & Co, Architects, 41, High-street, Newport	do.
Police Station, Inglewhite, near Preston	Lancs County Council	H. Littler, Architect, County Offices, Preston	do.
Road Works, Sutton Crescent, &c.	Walsall Corporation	Borough Surveyor, Town Hall, Walsall	do.
Four Houses and Shop, Highgate Heaton, Yorks	.....	Rycroft & Firth, Architects, Manchester-road, Bradford	do.
Cement, Kerbs, &c.	Bury (Lancs) Corporation	A. W. Bradley, Civil Engineer, Town Hall, Bury	do.
Three Houses, Overcarr-lane, Royston	Mr. A. Beaumont	H. Crawshaw, Architect, 13, Regent-street, Barnsley	do.
Alterations to Steading, Alford, N.B.	.....	Cochran & Macpherson, 152, Union-street, Aberdeen	do.
Rebuilding Farmhouse, Ardleigh, Essex	.....	J. W. Start, Architect, Colchester	do.
Widening Bridge, Afon Llwyd	Pontypool U.D.C.	D. J. Lougher, Engineer, Bank Chambers, Pontypool	Mar. 20
Road Metal, &c.	Stokesley R.D.C.	W. H. Dixon, Surveyor, Kirby-in-Cleveland	do.
House, Mold Green	.....	J. Berry, Architect, 9, Queen-street, Huddersfield	do.
Footbridge, &c., Phillips-lane	Colne (Lancs) Corporation	T. H. Hartley, Borough Surveyor, Town Hall, Colne	do.
Electric Lighting Station	do.	do.	do.
Kerbs, &c.	Bredbury & Romiley U.D.C.	Surveyor, School Brow, Bredbury	do.
Wrought-iron Tubes, &c.	Rhondda U.D.C.	O. Thomas, Engineer, Pentre, Glam	do.
Street Works, Kirkstall, Leeds	.....	A. E. Dixon, Architect, 5, Park-lane, Leeds	do.
Bridge Works, Little Aine	Alcester R.D.C.	C. Gander, Surveyor, Council Offices, Alcester	do.
Street Works, Cecil-street, &c.	Stockport Corporation	J. Atkinson, Civil Engineer, St. Petersgate, Stockport	do.
Inn, Mytholmroyd, Yorks	.....	L. Coates, Architect, Yorks Bank Chambers, Halifax	do.
Surveyor's Materials	Aylesbury U.D.C.	J. H. Bradford, Surveyor, Town Hall, Aylesbury	do.
*Drainage Work	Islington Guardians	W. Smith, Architect, 65, Chancery-lane, W.C.	Mar. 21
Surveyor's Materials	Burnley Corporation	Borough Surveyor, Town Hall, Burnley	do.
Lime (1,150 tons)	Salford Corporation	Gas Engineer, Bloom-street, Salford	do.
Road Works, Watson-lane, Sowerby Bridge	.....	W. C. Clements, Architect, 29, Southgate, Halifax	do.
Offices, The Hayes	Cardiff Corporation	W. Harpur, Civil Engineer, Town Hall	do.
Chimney Shaft, Roath	do.	do.	do.
Hospital, Fort William, N.B.	.....	L. & J. Falconer, Architects, Fort William	do.
Cast-iron Pipes, &c.	Nelson (Lancs) Corporation	A. Allan, Engineer, Town Hall, Nelson	do.
Additions to Gillas House, Sedbergh	Mr. C. W. Baxter	S. Shaw, Architect, Highgate, Kendal	do.
House, New Close, Shipley, Yorks	.....	W. Wilcock, Architect, 9, Leeds-road, Bradford	do.
Gas Works, Shed, &c., Bradford-road	Manchester Corporation	J. G. Newbigging, Civil Engineer, Town Hall, Manchester	do.
Thirty-six Houses, Mountain Ash, Glam	Park Building Club	Morgan & Elford, Architects, 1, Jeffrey-street, Mountain Ash	do.
Retort House, &c.	Newtownards (Ireland) U.D.C.	W. Heron, Council Offices, Newtownards	Mar. 22
Granite Setts (2,500 tons)	Blackburn Corporation	W. Stubbs, Civil Engineer, Municipal Offices, Blackburn	Mar. 23
Whinstone (6,000 tons)	Driffield (Yorks) R.D.C.	T. C. Beaumont, Surveyor, Driffield	do.
Steel Gasholder Tank, &c.	Buxton Gas Committee	H. Barker, Engineer, Town Hall, Buxton	do.
Water Supply Works	Clitheroe (Lancs) R.D.C.	J. Eastham, Church-street, Clitheroe	do.
Surveyor's Materials	Swindon Corporation	H. J. Hamp, Borough Surveyor, Town Hall, Swindon	do.
Pipes, Cement, &c.	Waterloo (Lancs) U.D.C.	F. S. Yates, Civil Engineer, Town Hall, Waterloo	do.
Whinstone (6,000 tons), Beverley	East Riding County Council	A. Beaumont, Civil Engineer, Beverley	do.
Gasholder Tank, &c.	Buxton Town Council	H. Barker, Engineer, Town Hall, Buxton	do.
Schools, Probus, Cornwall	.....	S. Hill, Architect, Green-lane, Redruth	do.
Road Works, Blairgowrie, N.B.	.....	G. Cunnison, Burgh Surveyor, Blairgowrie	do.
Stoneware Pipes, Granite Setts, &c.	Hounslow U.D.C.	P. G. Parkman, Surveyor, Town Hall, Hounslow	do.
Paving Works	Great Harwood (Lancs) U.D.C.	R. Chippendale, Town Hall, Great Harwood	do.
*Chimney Shaft	Hornsey U.D.C.	Engineer, Council Offices, Southwood-lane, Highgate	Mar. 25
Additions to Workhouse, Beckett-street	Leeds Union Guardians	T. Winn & Sons, Architects, 92, Albion-street, Leeds	do.
Sewerage Works, South Kirkby	Hemsworth R.D.C.	T. H. Richardson, Surveyor, Hemsworth	do.
Surveyor's Materials	Bacup (Lancs) Corporation	Borough Surveyor, Town Hall, Bacup	do.
Constructional Steel Work	Newport (Mon.) Corporation	H. F. Parshall, Engineer, 8, Princes-street, E.C.	do.
Foundations, &c.	do.	R. H. Haynes, Borough Engineer, Newport	do.
Baths, &c.	Elland U.D.C.	G. Hepworth, Architect, 20, Bradford-street, Brighouse	do.
Paving Works, Saddleworth-road	do.	P. H. Whitwam, Council Offices, Elland	do.
Road Materials	Gateshead Corporation	J. Bower, Civil Engineer, Town Hall, Gateshead	do.
*Roads	Beckenham U.D.C.	Surveyor, Council Office, Beckenham	do.
*Wood Paving	Essex County Council	County Offices, Chelmsford	do.
Fencing and Gates	Croydon Borough Council	Borough Engineer, Town Hall, Croydon	Mar. 26
*Coal and Coke	Willesden District Council	Engineer, Public Offices, Dyne-road, Kilburn, N.W.	do.
*Materials	Wembley U.D.C.	Surveyor, Public Offices, Wembley	do.
*Steam Road Roller	West Ham Borough Council	Borough Engineer, Town Hall, West Ham, E	do.
*Sewering, Levelling, &c.	Hornsey U.D.C.	Engineer, Council Offices, Southwood-lane, Highgate, N.	do.
Granite Road Metal (4,000 tons)	Uppingham R.D.C.	J. E. Willford, Council Offices, Uppingham	do.
Houses, Church Hill, Thorner, Leeds	Mr. J. A. Booth	H. Walker, Architect, 8, Upper Fountaine-street, Leeds	do.
Storage Tanks	Shoeburyness U.D.C.	H. Harris, Surveyor, Clarence-street, Southend	do.
Cottage, Ditchampton	Wilton (Wilts) Town Council	H. J. King, Russell-street, Wilton	do.
Warehouse and Yard Works, near Blackburn	L. & Y. Railway Company	R. C. Irwin, Hunt's Bank, Manchester	do.
Refuse Destructor	Kettering U.D.C.	T. Reader Smith, Surveyor, Market Place, Kettering	Mar. 27
*Drainage, &c., Works	Isle of Thanet Guardians	L. Grant, Architect, Sittingbourne	do.
*Nurses' Home	St. George-in-the-East Guardians	J. H. May, 249½, High Holborn, W.C.	Mar. 29
*Destructor Buildings	Hull Corporation	City Engineer, Town Hall, Hull	do.
Harbour Works	Penryn Harbour Commissioners	J. P. Jenkins, Civil Engineer, Town Hall, Penryn	Mar. 30
Cement, Granite, Flints, &c.	Epsom U.D.C.	Surveyor, Bromley Hurst, Epsom	do.
Timber, Stoneware Pipes, &c.	Llanelly U.D.C.	H. W. Spowart, Town Hall, Llanelly	April 1
*Works and Materials	Newport (Salop) U.D.C.	See Advertisement	April 3
*Building Materials and Tools	The Prison Board	See Advertisement	April 9
Two Cottages, St. Mellons	.....	S. Rooney, 9, Quay-street, Cardiff	No date
Alterations to Business Premises, Somercoates	Mr. G. Beastall	P. B. Houfton, Architect, Furnival-chambers, Chesterfield	do.
Rebuilding 19, Church-street, Whitehaven	Mr. R. Burlington	J. S. Moffat, Architect, 53, Church-street, Whitehaven	do.
Three Houses, Hough-lane, Wombwell	.....	J. Robinson, Surveyor, Wombwell	do.
Sewers, &c., Elworth, near Sandbach	Congleton R.D.C.	W. Wyatt, Engineer, 99, Radford-road, Leamington	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Clerk of Works	Scarborough Corporation	3*l.* 3*s.* per week	Mar. 18
*Clerk of Works	Camberwell Guardians	4*l.* 14*s.* 6*d.* per week	No date

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p. —, Contracts, pp. iv. vi. viii. x. & xxi. Public Appointments, pp. xix. & xxi.*

PRICES CURRENT (*Continued*).

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON.—		
Common Bars	9 10 0	- - -
Staffordshire Crown Bars, good merchant quality	9 15 0	10 0 0
Staffordshire "Marked Bars"	11 10 0	- - -
Mild Steel Bars	9 10 0	10 10 0
Hoop Iron, basis price	10 5 0	10 15 0
" " galvanised	16 0 0	- - -
" " (* And upwards, according to size and gauge.)		
Sheet Iron, Black.—		
Ordinary sizes to 20 g.	10 15 0	- - -
" " to 24 g.	11 15 0	- - -
" " to 26 g.	13 5 0	- - -
Sheet Iron, Galvanised, flat, ordinary quality.—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	13 0 0	- - -
" " 22 g. and 24 g.	13 15 0	- - -
" " 26 g.	15 10 0	- - -
Sheet Iron, galvanised, flat, best quality.—		
Ordinary sizes to 20 g.	17 0 0	- - -
" " 22 g. and 24 g.	17 10 0	- - -
" " 26 g.	19 0 0	- - -
Galvanised Corrugated Sheets.—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	13 0 0	- - -
" " 22 g. and 24 g.	13 10 0	- - -
" " 26 g.	14 0 0	1 10 0
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	13 0 0	- - -
" " 22 g. and 24 g.	14 0 0	- - -
" " 26 g.	15 0 0	- - -
Cut nails, 3 in. to 6 in. (Under 3 in. usual trade extras.)	11 10 0	- - -
LEAD—Sheet, English, 3 lbs. & up.	17 0 0	- - -
Pipe in coils	17 10 0	- - -
Soil Pipe	20 0 0	- - -
ZINC—Sheet—		
Vieille Montagne ton	25 0 0	- - -
Silesian	24 10 0	- - -
COPPER—		
Strong Sheet per lb.	0 1 0½	- - -
Thin "	0 1 2	- - -
Copper nails "	0 1 2	- - -
BRASS—		
Strong Sheet "	0 0 11	- - -
Thin "	0 1 1	- - -
TIN—English Ingots "	0 1 4½	- - -
SOLDER—Plumbers' "	0 0 7½	- - -
Tinmen's "	0 0 8½	- - -
Blowpipe "	0 0 9½	- - -

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2¾d. per ft. delivered.
" fourths	2¾d. " "
21 oz. thirds	3¼d. " "
" " fourths	3¼d. " "
26 oz. thirds	4¼d. " "
" " fourths	4¼d. " "
32 oz. thirds	5¼d. " "
" " fourths	5¼d. " "
Fluted sheet, 15 oz.	3¼d. " "
" " 21 "	4¼d. " "
⅛ Hartley's Rolled Plate	3d. " "
⅜ " " "	3½d. " "
½ " " "	4d. " "

OILS, &c.

	£ s. d
Raw Linseed Oil in pipes per gallon	0 2 2
" " " in barrels "	0 2 3
" " " in drums "	0 2 5
Boiled " " in pipes "	0 2 4
" " " in barrels "	0 2 5
" " " in drums "	0 2 7
Turpentine, in barrels "	0 2 6
" in drums "	0 2 8
Genuine Ground English White Lead ...per ton	26 0 0
Red Lead, Dry "	25 0 0
Best Linseed Oil Putty per cwt.	0 9 0
Stockholm Tar per barrel	1 10 0

VARNISHES, &c.

	per gallon £ s. d
Fine Elastic Copal Varnish for outside work	0 16 6
Best Elastic Copal Varnish for outside work	1 0 0
Best Elastic Carriage Varnish for outside work	0 16 6
Best Hard Oak Varnish for inside work	0 10 6
Best Extra Hard Church Oak Varnish for inside work	0 10 6
Fine Hard Copal Varnish for inside work	0 16 0
Best Hard Copal Varnish for inside work	1 0 0
Best Hard Carriage Varnish for inside work	0 16 0
Extra Pale Paper Varnish	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 9 0
Berlin Black	0 15 0
Knotting	0 10 0
Best French and Brush Polish	0 10 0

TO CORRESPONDENTS.

F. C. (Received). S. S. R. (Below our limit).

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TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays*. N.B.—We cannot publish tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of tenders accepted unless the amount of the tender is given, nor any list in which the lowest tender is under £100, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

BROMLEY (Kent).—For additions and alterations to private residence at Sundridge Park. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington. Quantities by Messrs. C. Stanger & Son :—

Graham & Co.	£1,681	D. Payne	£1,616
R. A. Lowe	1,633	Somerford & Son	1,610
Crossley & Son	1,630	T. D. Graty	1,526
F. P. Duthoit	1,618		

CANTERBURY.—For the extension of the electricity works, for the Corporation. Quantities by City Surveyor, Canterbury :—

Barker & Co.	£3,397 0 0	A. J. Brewster, Canterbury*	£3,156 16 11
W. J. Adcock	3,341 0 0	[City Surveyor's estimate	3,000 0 0]
Exors. H. B. Wilson	3,314 6 10		

DARWEN (Lancs).—For alterations to store premises, Spring Bank, for the Industrial Co-operative Society, Limited. Mr. J. B. Thornley, architect, Darwen :—

Robert Shorrock, Union-street, Darwen	£169 10
Extra cost of roof	21 0
	£190 10*

DOWNE (Kent).—For the erection of a detached private residence. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington :—

Somerford & Son, Orpington†	£1,170

HARROGATE.—For the various works required in the extension of boiler house at the electric lighting station, Harrogate. Mr. F. Bagshaw, Borough Engineer :—

Masonry.‡—T. Godfrey, Harrogate*	£600 0 0
Joinery.—Stott & Alcock, Harrogate*	70 0 0
Slating.—R. Sherry, York*	42 12 0
Painting.—Noddings & Son, Harrogate*	24 15 6
Ironfounding.—Cross & Cross, Walsall*	532 0 0

‡ The above amount is exclusive of £500 for raising chimney stack.

HARROGATE.—For draining, levelling, pitching, ballasting, kerbing, and channelling the new road across Harlow Moor for the Corporation. Mr. F. Bagshaw, Borough Engineer :—

G. Parsons, Harlow Hill, Harrogate*	£2,327 14 9

HARROGATE.—For emptying ashpits and dustbins from February 24 to September 24, 1901. Mr. F. Bagshaw, Borough Engineer, Harrogate :—

Robert Annakin, Harrogate (Central Ward)*	£327 2
Robert Annakin, Harrogate (East Ward)*	327 10
T. Annakin, Harrogate (West Ward)*	259 0
A. Eshelby (Starbeck, Bilton, and Oatlands Districts)*	230 0

HULL.—For the erection of schools, Thoresby-street, for the School Board. Messrs. Brodrick, Lowther, & Walker, architects, Lowgate, Hull :—

D. Robinson	£16,457 13 0	T. Levitt	£15,495 0 0
G. Houlton	16,400 0 0	G. L. Scott	15,000 0 0
Bowman&Son	16,394 0 0	Simpson&Son	14,776 0 0
M. Harper	16,290 0 0	F. Beilby, St. Georges-road, Hull*	14,686 0 0
F. Southern	16,167 8 4		
T. Goates	15,550 0 0		

IPSWICH.—For the erection of offices, Museum-street, for Messrs. Jos. Bird & Son. Mr. G. W. Leighton, architect, 6, Princes-street, Ipswich :—

Robert Girling, Ipswich	£1,095

KING'S LYNN.—For work at Rackham's Almshouses, King's Lynn, Norfolk. Mr. Herbert J. Green, architect and surveyer, 31, Castle Meadow, Norwich :—

W. H. Brown	£1,488	Bardell Bros.	£1,194
Task & Langley	1,421	Renant Bros.	1,280
Robert Dye	1,384	W. F. Smith	1,178

[All of King's Lynn.]

LERWICK.—For the erection of school buildings, for the School Board. Mr. John Morgan Aitken, architect. Quantities by architect :—

Masonry.—John Morgan Aitken, Lerwick, N.B.	£3,150 0 0
Carpentry, &c.—Thomas S. Sutherland, Huntly, N.B.	1,964 0 0
Plumbing.—John Morgan Aitken, Lerwick	436 0 0
Slating.—George Farquhar, Aberdeen	218 0 0
Plastering.—Seelar & Co., Aberdeen	292 0 0
Glazing and Painting.—Seelar & Co., Aberdeen	282 0 0
Iron and Smith Work.—P. & W. McLellan, Glasgow	208 14 5

SALISBURY.—For the erection of a Masonic Hall, Crane-street. Mr. A. C. Bothams, architect, 32, Chipperlane, Salisbury :—

Webb & Co.	£2,140 0	E. Witt	£1,807 5
W. Day	1,941 0	H. J. Kite, Fisherton, Salisbury*	1,800 0
Wort & Way	1,825 0		
T. Dawkins	1,820 0		

LEEDS.—For the extension of the Crown Works, Harehills-road, for Mr. A. W. Midgley. Mr. A. E. Dixon. architect, 5, Park-lane, Leeds :—

Bricklaying and Masonry.—John Pickard, Leeds*	£665 0 0
Joinery.—Mason & Son, Leeds*	855 0 0
Ironfounding.—Roberts & Co., Ltd., Bradford*	650 0 0
Slating.—Pickles Bros., Leeds*	235 0 0
Plumbing.—Tom Barrand, Leeds*	165 0 0
Plastering.—C. Hemsley, Leeds*	57 4 7
Painting.—Roylance & Horsman, Leeds*	44 11 0
Ventilating.—Walker & Co., Halifax*	50 15 0

LINGFIELD (Surrey). — For erecting banking premises and residence for Mr. D. W. Farrance. Mr. W. C. F. Gillam, architect, Brighton :—

Young	£1,295 0	Stanford, Lingfield*	£1,145 10
Head	1,280 0		
Dives	1,240 12		

NEWPORT.—For concrete and brickwork covered service reservoir, for the Newport (Isle of Wight) Corporation. Mr. Edwd. T. Hildred, engineer, 1, High-street, Gosport :—

Wills & Sons.	£7,475 0 0	R. M. Parkinson	£4,785 0 0
S. Kavanagh	5,040 14 6	Stevens & Co., Southampton*	£4,624 0 0
Cooke & Son	4,859 0 0		
Patrick & Co.	4,799 0 0		

ORPINGTON (Kent).—For the erection of small villas at Chapel-street. Mr. St. Pierre Harris, architect, Orpington, and 8, Ironmonger-lane, E.C. :—

E. R. Thorne, Orpington*	£1,440
[No competition.]	

OSWESTRY.—For the erection and completion of fire station, stores, stables, cart-shed, and mortuary, for the Town Council. Mr. G. William Lacey, C.E., Borough Engineer and Surveyor. Quantities by the Borough Surveyor :—

J. Vaughan	£630 0 0	J. Higgins	£560 0 0
Jones & Evans	585 12 9	W. H. Thomas, Oswestry*	539 0 0
W. Felton	570 0 0		

[Borough Engineer and Surveyor's estimate....£558.]

REDHILL.—For new conservatory, &c., at Holt House, Redhill, for Mr. T. V. Low. Mr. C. E. Salmon, architect, Bell-street, Reigate :—

Brickwork.—E. Worssell*	£130 16 6
Ironwork.—Tamplin & Makovski*	

ST. MARY CRAY (Kent).—For the erection of stabling at new residence in High-street. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington :—

E. R. Thorne	£216	Somerford & Son, Orpington*	£198
Stebbings & Pannett	215		
Griffin	213		

SCARBOROUGH.—For the erection of offices, Dean-street, for the Guardians. Messrs. Runton & Barry, architects, Huntriss Chambers, Scarborough :—

Brickwork, &c., and Terrazzo Paving.—Jaram & Sons, Gladstone-street*	£729 0 0
Plastering. — T. G. Richardson, Gordon-street*	95 15 11
Carpentry and Joinery.—C. Flinton, Gladstone-road*	485 17 0
Plumbing. — D. Maynard, Castle-road*	238 0 0
Masonry. — Coultas & Hovington, Hampton-road*	213 3 6
Painting.—Richard Kelly, Valley Bridge Parade*	25 18 0
Slating.—J. Hardgrave, Bell Vue Parade*	82 5 0
Electric Light and Bells.—G. F. Wells, Waterhouse-lane	29 10 0
Total	£1,899 9 5

WEST WINCH.—For work at Church of St. Mary, West Winch, Norfolk, near King's Lynn. Mr. Herbert J. Green, architect and surveyor, 31, Castle Meadow, Norwich :—

W. F. Smith	£544 1 0	W. H. Brown	£480 10 6
Robert Dye	499 0 0	Bardell Bros.†	447 10 0

[All of King's Lynn.]

WORKINGTON.—For alterations and extensions to Mr. J. T. Lister's furniture warehouse and showrooms, Finkle-street, Workington, for Mr. John Jessop. Messrs. W. G. Scott & Co., architects and surveyors, Workington :—

Masonry.—Geo. Mann*	£463 0 0
Joinery.—Jas. Fletcher*	479 0 0
Slating.—Lythgoe & Sons*	24 16 0
Plastering.—Jas. Perrin*	30 0 0
Plumbing.—D. M. Walker*	82 0 0
Painting and Glazing.—K. Hodgson*	93 12 4
Total	£1,172 8 4

[All of Workington.]

LONDON SCHOOL BOARD TENDERS.

AT the last meeting of the London School Board, the Works Committee submitted the following list of tenders. Mr. T. J. Bailey is the Board's Architect :—

BOLINGBROKE-ROAD.—Painting interior and exterior :—

R. S. Ronald	£553	E. B. Tucker	£433 2 6
Rice & Son	447	J. Garrett & Son	416 0 0
Martin, Wells, & Co.	440	C. Gurling	405 0 0
Johnson & Co., Ltd.	438	E. Flood*	359 0 0

[*See also next page.*

BONNER-STREET.—Cleaning interior (boys and girls):—

Gibb & Co.	£135 0 0	Barrett & Power	£108 0 0
Silk & Son	120 0 0	Collis Willmott*	104 5 0
W. Shurmur	118 0 0		

CONWAY-ROAD.—Painting interior and exterior:—

W. Jolly	£610 15	Hayter & Son	£377 10
W. Banks	456 10	H. Groves	355 0
J. Kybett	415 0	E. Proctor*	350 0
Johnson & Co.	390 0		

DULWICH HAMLET.—Painting interior:—

H. Leney	£369	Maxwell Bros., Ltd.	£204
J. & C. Bowyer	252	Rice & Son*	199
H. Line	215		

EDWARD-STREET (Temporary).—Painting interior:—

W. Banks	£325 0	E. Proctor	£103 0
W. J. Howie	253 0	S. Musgrove*	85 10
H. Groves	145 0		
Hayter & Son	115 0		
Blackheath Sanitary and Decorative Works	105 0		

EVERINGTON-STREET.—Painting interior:—

E. Flood	£488 0 0	C. Gurling	£332 0 0
S. Polden	351 0 0	W. Hornett	315 0 0
W. R. & A. Hide	346 10 0	F. Chidley	303 17 6
F. T. Chinchen	344 10 0	W. Hammond	257 9 8
W. Chappell	340 0 0	C. Curd*	185 0 0

FARNCOMBE-STREET.—Painting interior:—

W. Banks	£512 0	G. Barker	£370 10
Johnson & Co.	476 0	E. Triggs*	348 0
H. J. Williams	438 0		

GIDEON-ROAD.—Painting interior and exterior:—

R. S. Ronald	£526 4 6	Lathey Bros.	£437 0 0
Lorden & Son	468 0 0	Maxwell Bros., Ltd.	428 0 0
Johnson & Co., Ltd.	438 0 0	E. B. Tucker	427 10 0
Holliday & Greenwood	437 0 0	E. Triggs*	390 0 0

GLOUCESTER-GROVE EAST.—Painting interior:—

King & Son	£352 0	W. Hammond	£224 14
S. Polden	325 0	W. Hornett	201 0
E. Flood	285 0	W. Brown*	190 0
F. Chidley	227 9		

HAGUE-STREET.—Painting interior:—

J. F. Holliday	£401 0 0	J. Haydon	£332 10 0
J. Kybett	386 15 0	W. Shurmur	315 0 0
Collis Willmott	366 15 0	G. Barker	285 0 0
Barrett & Power	355 0 0	S. H. Corfield*	269 0 0
Silk & Son	350 0 0		

HAMOND-SQUARE. — Painting interior and exterior:—

Bate Bros.	£1,175	Silk & Son	£590
Barrett & Power	718	G. Wales	590
W. Shurmur	640	G. Barker	587
Marchant & Hirst	629	Stevens Bros.*	586

HOLLAND-STREET.—Painting interior:—

R. S. Ronald	£402	Johnson & Co.	£283
Holliday & Greenwood	307	Lathey Bros.	281
Garrett & Son	298	Maxwell Bros., Ltd.	263
		G. Brittain*	224

LOWER CHAPMAN-STREET.—Painting interior:—

A. E. Symes	£552 0 0	J. T. Robey	£394 10 0
Wall & Co.	441 0 0	S. H. Corfield	381 0 0
A. W. Derby	411 10 0	G. Wales	359 10 0
J. F. Holliday	409 10 0	J. Haydon*	358 18 0
Gibb & Co.	407 0 0		

MANTUA-STREET.—Cleaning interior:—

W. Hammond	£367 0	E. B. Tucker	£306 19
R. S. Ronald	353 0	Lathey Bros.	293 0
Holloway Bros.	345 0	E. Triggs*	264 0

POOLE'S PARK.—Cleaning interior:—

Bate Bros.	£525	Grover & Son	£237
Barrett & Power	255	Stevens Bros.	236
G. Kirby	252	Marchant & Hirst*	217

RATHFERN-ROAD.—Painting interior:—

Hayter & Son	£300 0	W. Banks	£236 10
J. & C. Bowyer	295 0	C. G. Jones	229 11
G. Kemp	270 0	H. Groves*	206 0

RISINGHILL-STREET.—Painting interior and exterior; old and new portions:—

Bate Bros.	£1,020 0	Marchant & Hirst	£679 0
T. Cruwys	760 0	M. Pearson	499 0
McCormick & Sons	747 0	Bristow & Eatwell*	457 7
Wall & Co.	711 0		

RUBY-STREET.—Cleaning interior:—

Johnson & Co.	£225	Rice & Son	£141
W. J. Howie	192	H. Line	140
G. Kemp	145	W. V. Goad*	140

WALNUT TREE-WALK.—Painting interior:—

J. F. Ford	£486 0	Rice & Son	£395 0 0
Bulled & Co.	436 0	King & Sou	338 0 0
Martin, Wells, & Co.	420 0	G. Brittain	324 0 0
H. & G. Mallett	397 10	W. Smith*	318 12 4

C. B. N. SNEWIN

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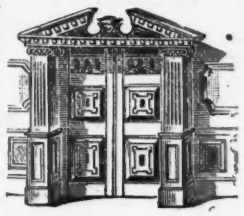

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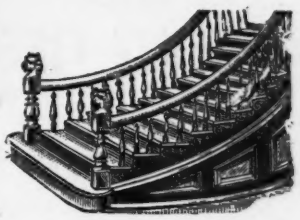

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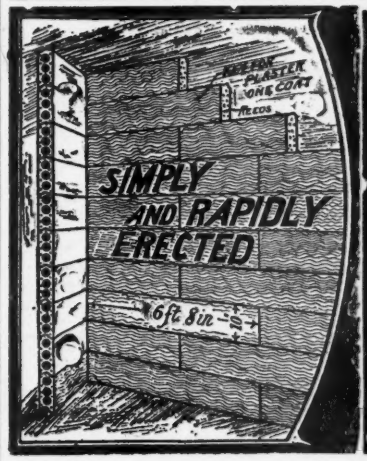

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ORDINARY BRANCH.—The number of Policies issued during the year was 74,680, assuring the sum of £7,613,035, and producing a New Annual Premium Income of £378,503.

The Premiums received during the year were £3,322,342, being an increase of £177,878 over the year 1899.

The Claims of the year amounted to £1,593,150. The number of deaths was 6,717, and 6,276 Endowment Assurances matured.

The number of Policies in force at the end of the year was 612,057.

INDUSTRIAL BRANCH.—The Premiums received during the year were £5 447,697, being an increase of £278,739.

The Claims of the year amounted to £2,227,218. The number of Deaths was 221,025, and 2,266 Endowment Assurances matured.

The number of Free Policies granted during the year to those Policy-holders of five years' standing who desired to discontinue their payments was 66,943, the number in force being 713,634. The number of Free Policies which became Claims during the year was 17,215.

The total number of Policies in force at the end of the year was 13,891,667 : their average duration is nine and a quarter years.

The Assets of the Company, in both branches, as shown in the Balance-Sheet, are £39,895,328, being an increase of £3,063,269 over those of 1899.

As already announced, Mr. W. J. LANCASTER, who has filled the office of Secretary since 1873, has been elected a Director.

The Staff Provident Fund, which was founded three years since for the benefit of the outdoor staff, shows a satisfactory increase for the year, the total amount standing to the credit of the Fund being £86,742.

Messrs. Deloitte, Dever, Griffiths, & Co. have examined the Securities, and their certificate is appended to the Balance-Sheets.

THOS. C. DEWEY, WILLIAM HUGHES, } *Joint General Managers.*
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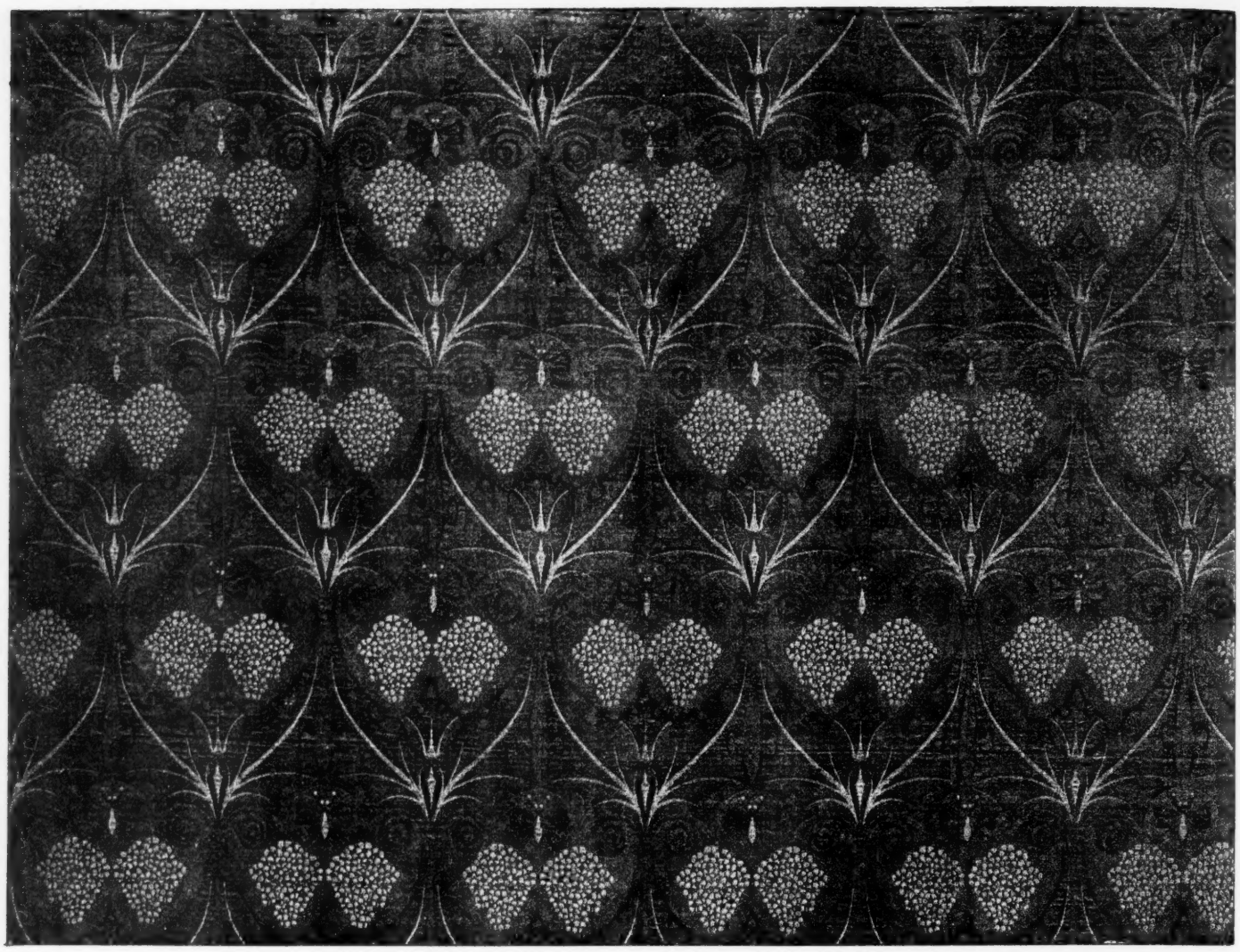

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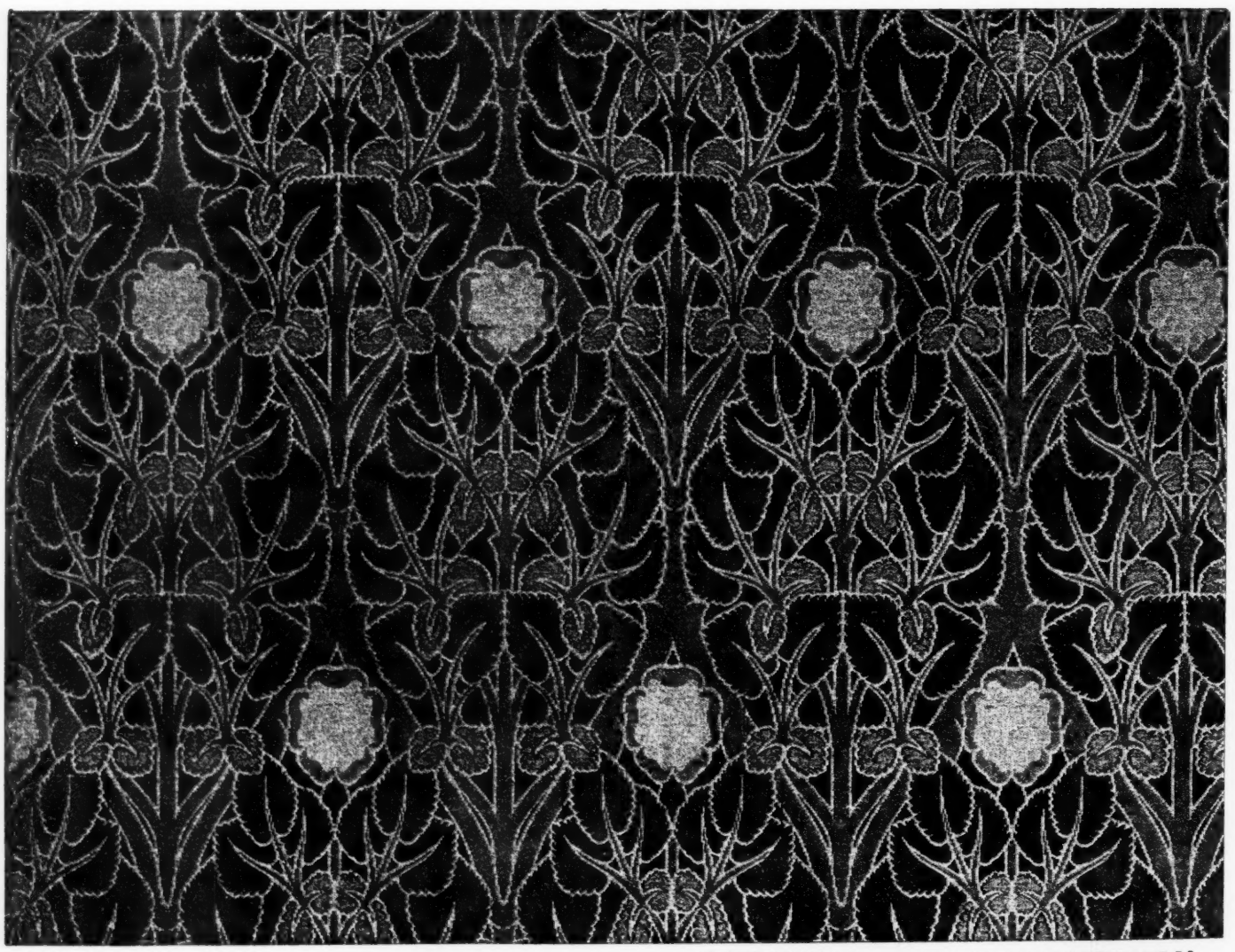

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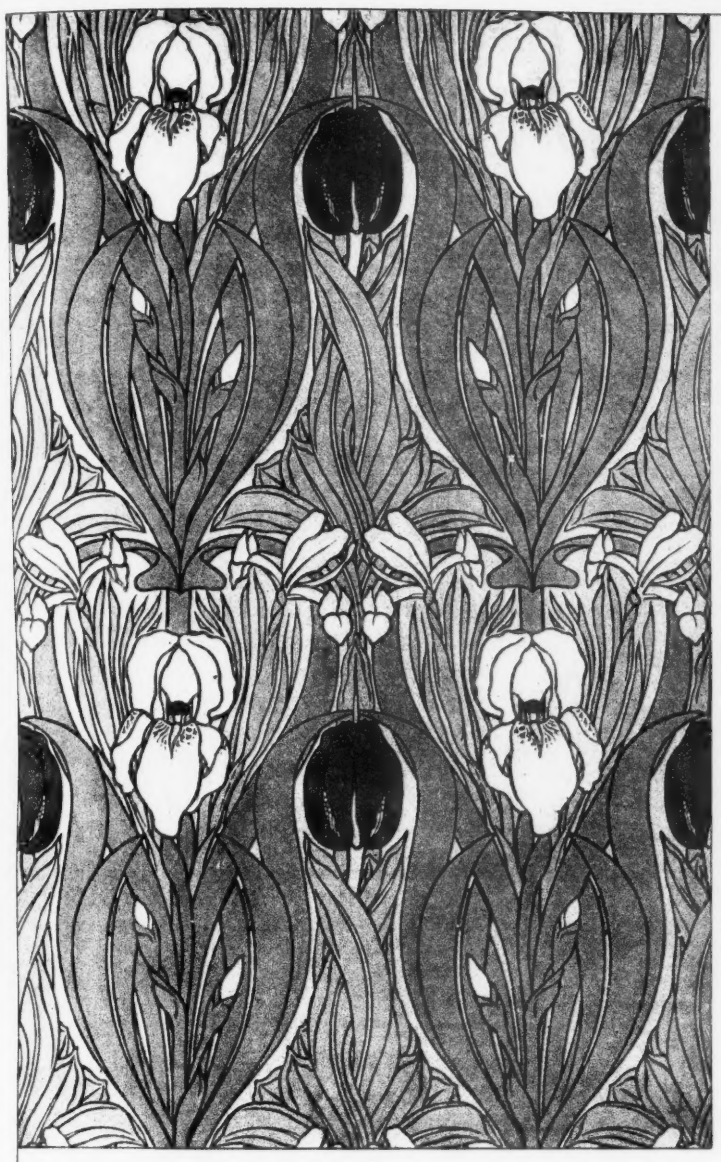

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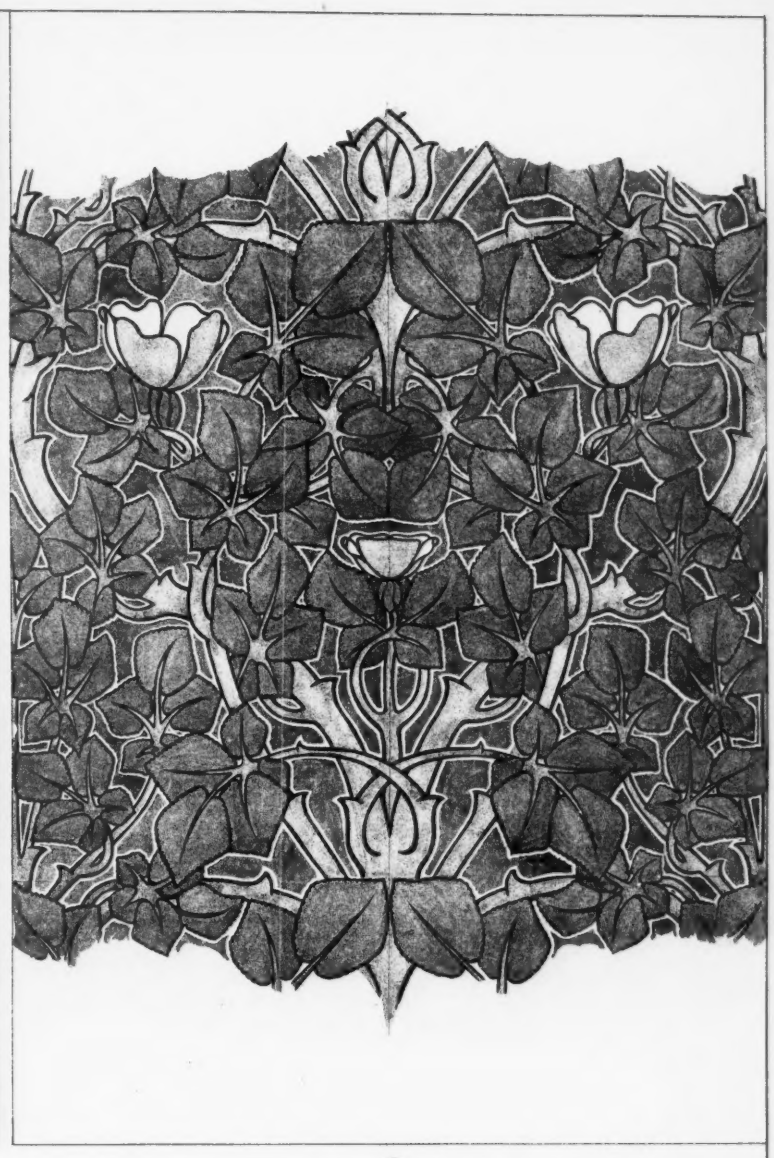

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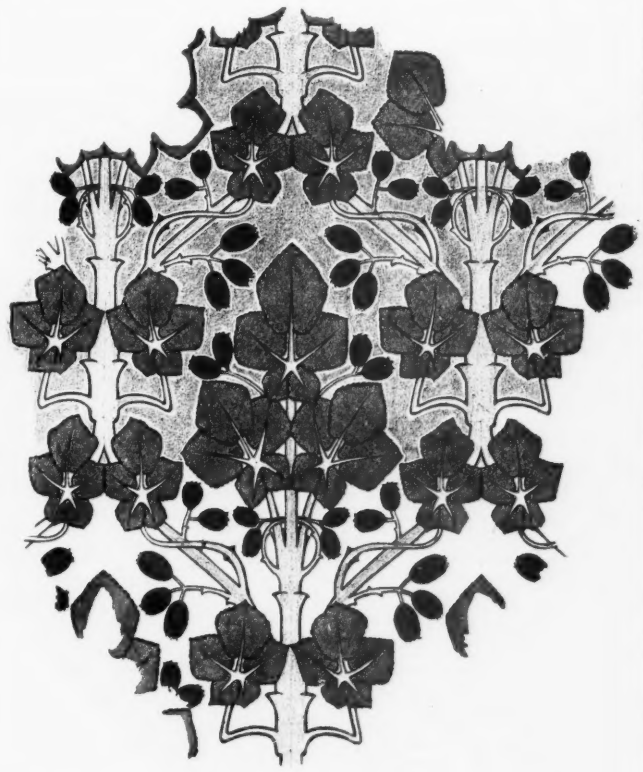

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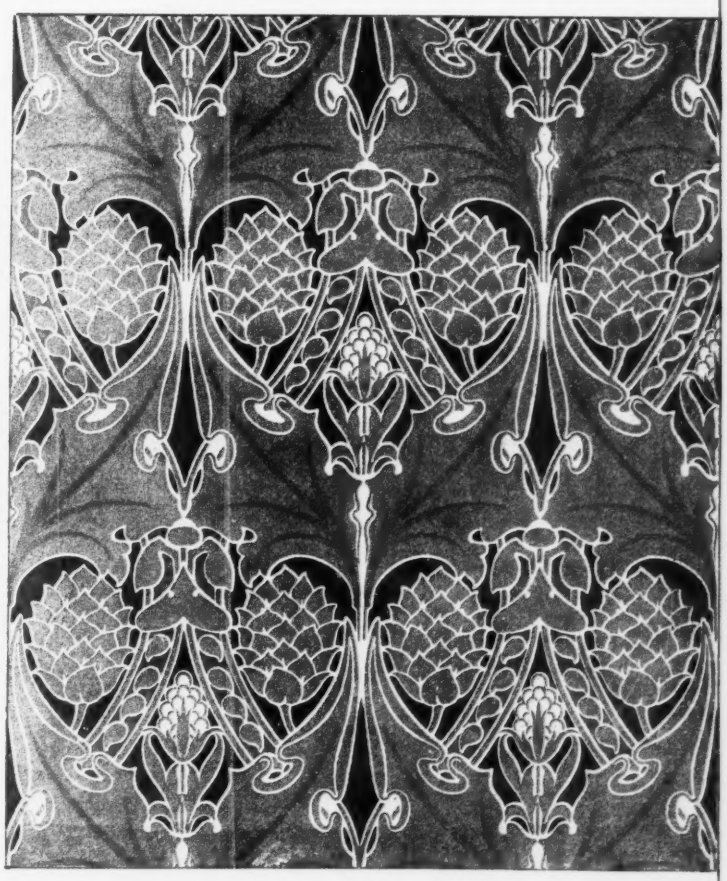

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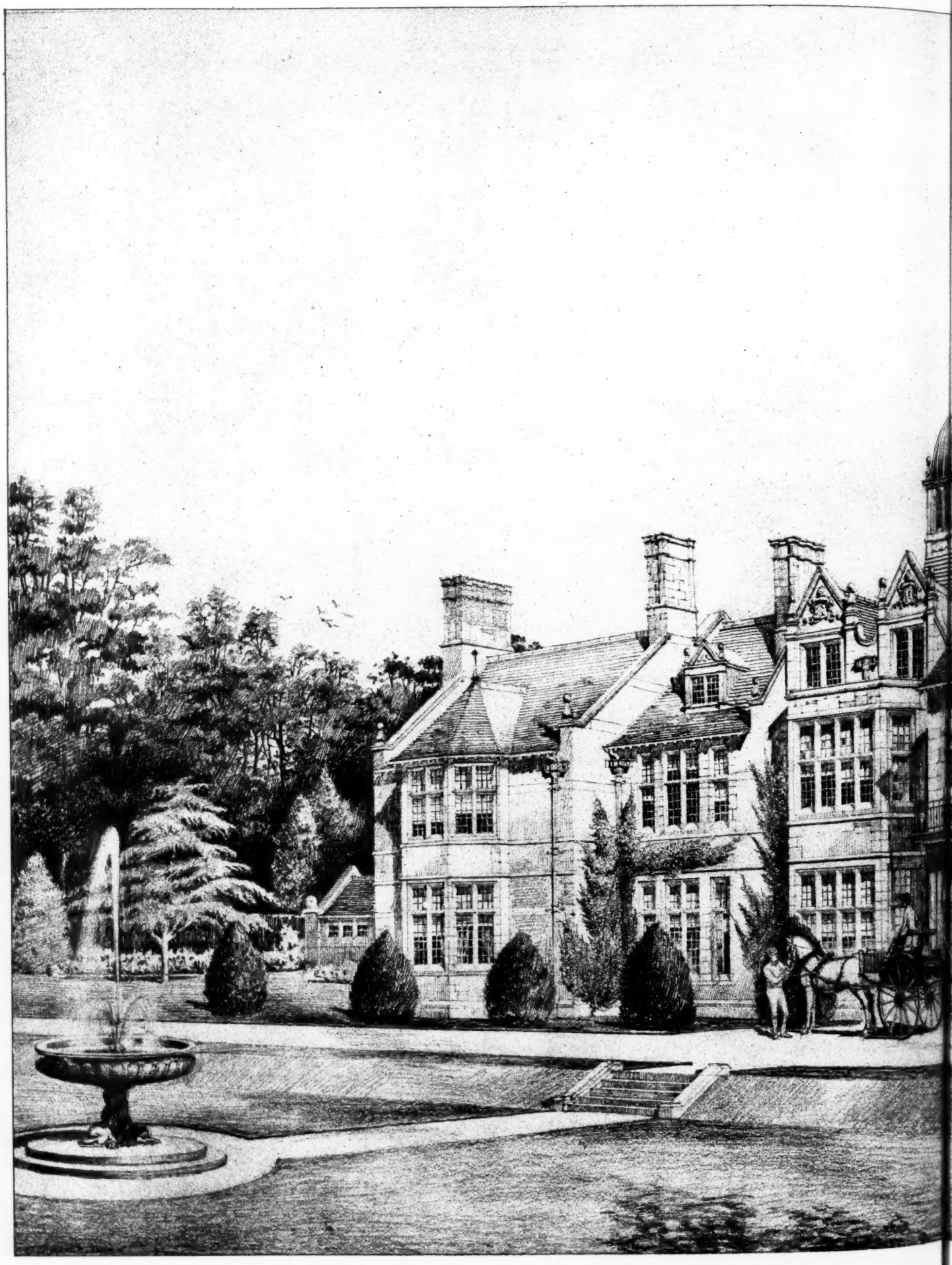

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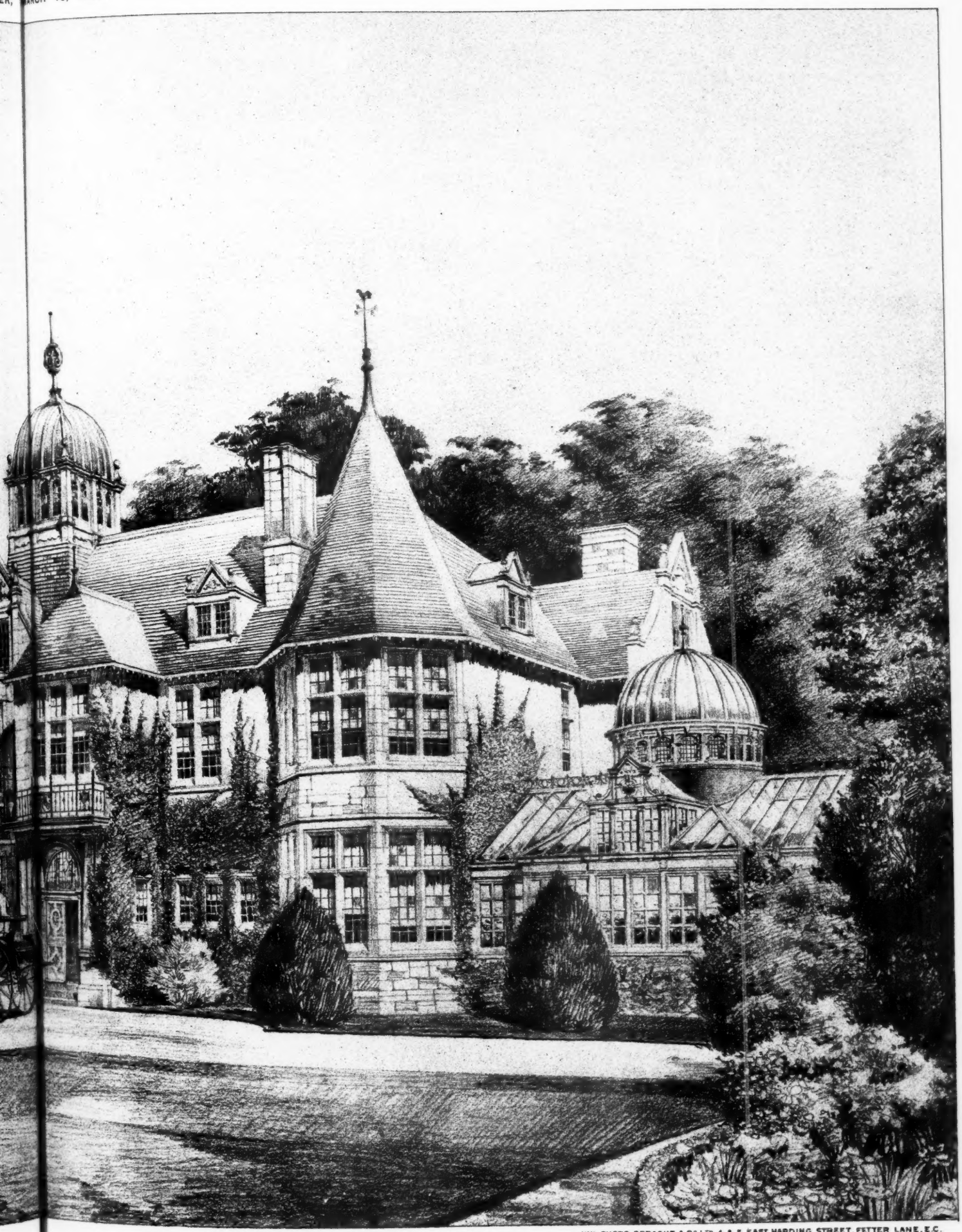

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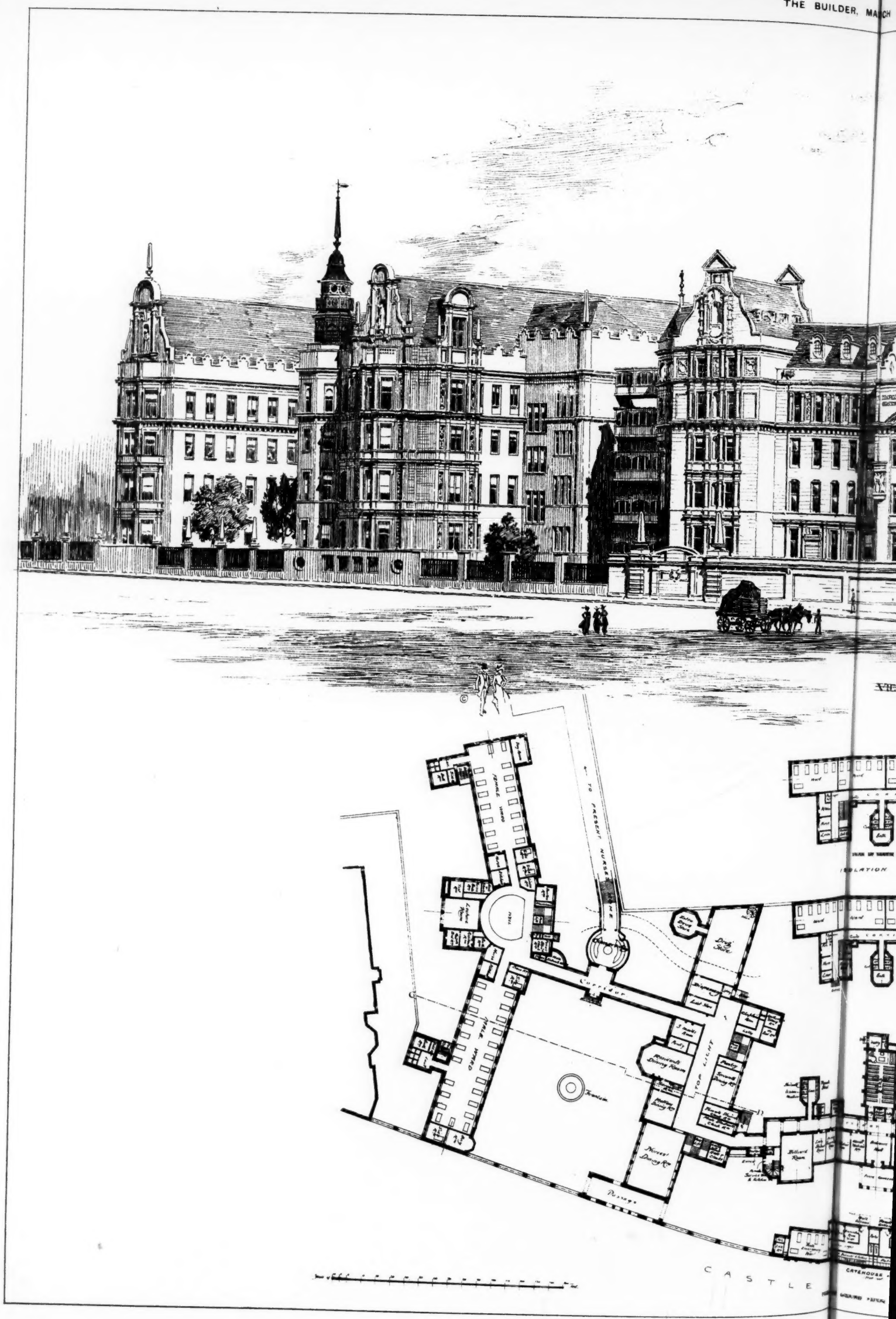

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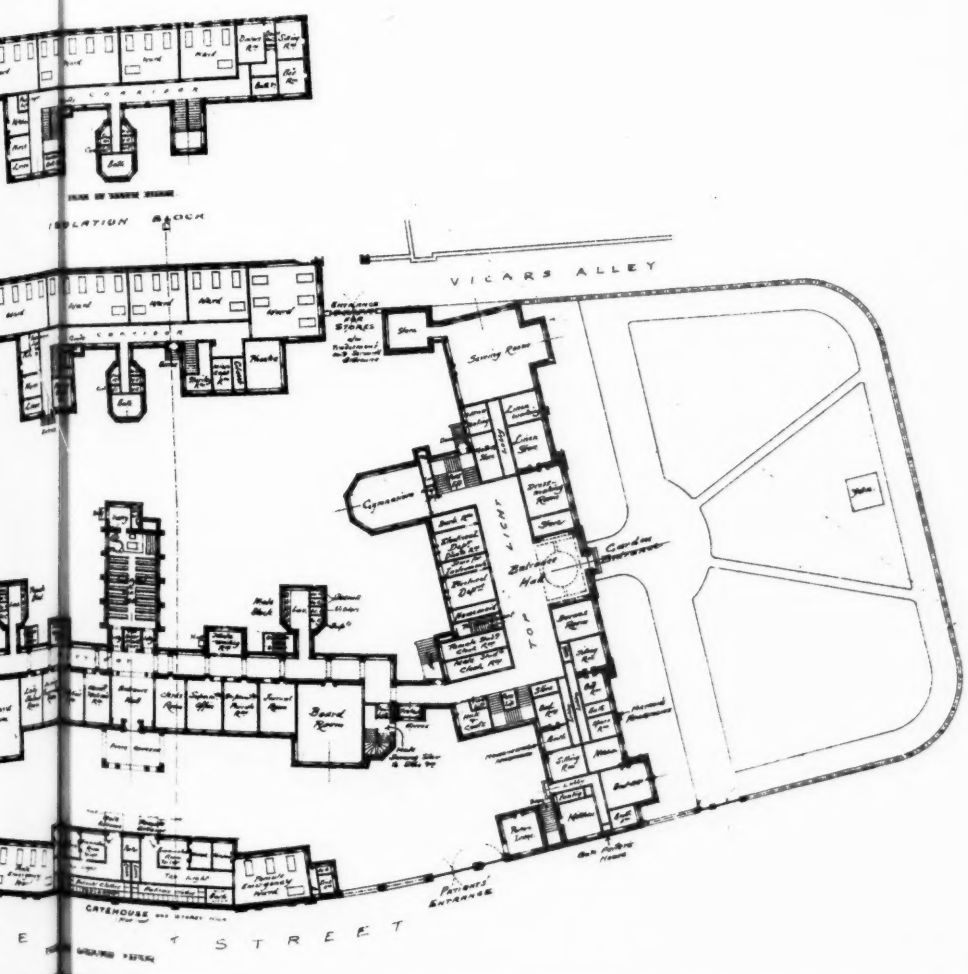

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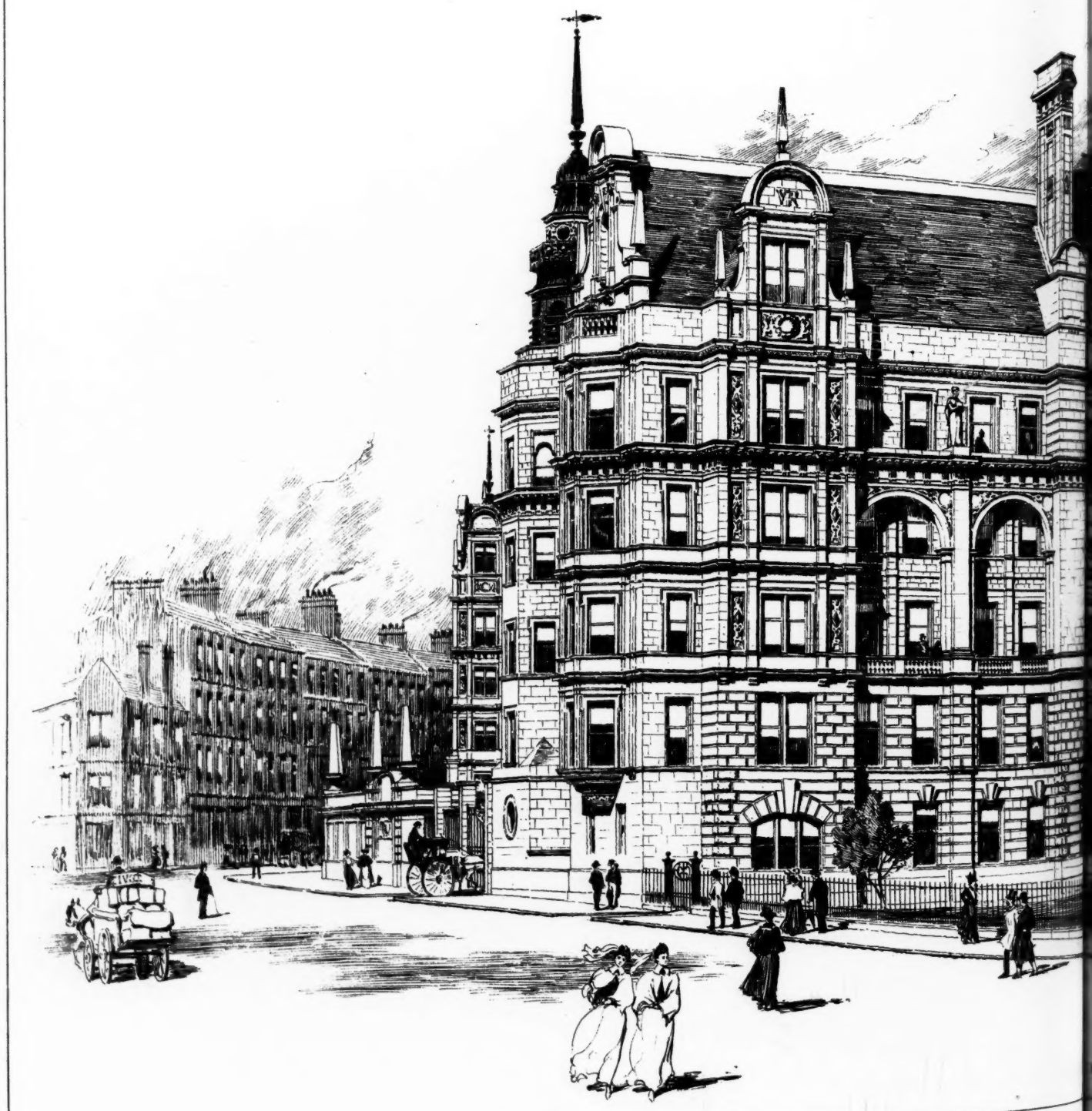

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